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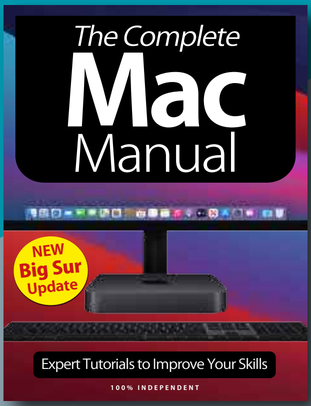
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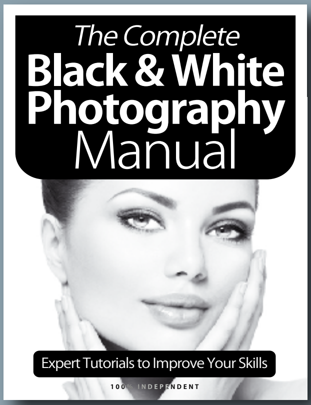
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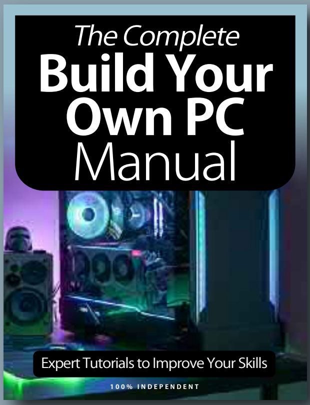
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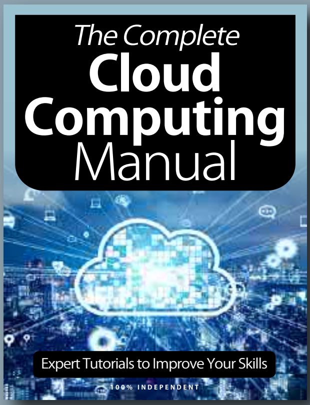
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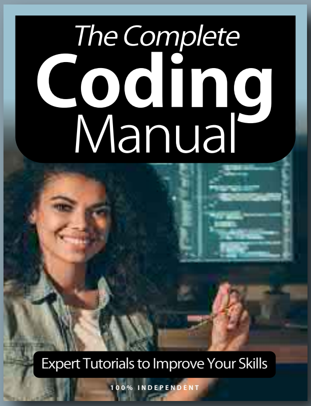
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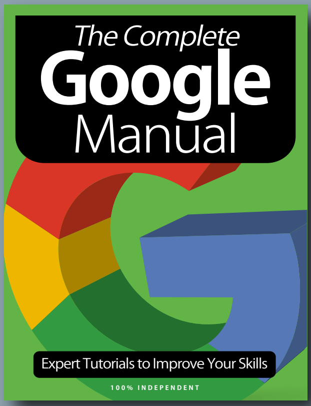
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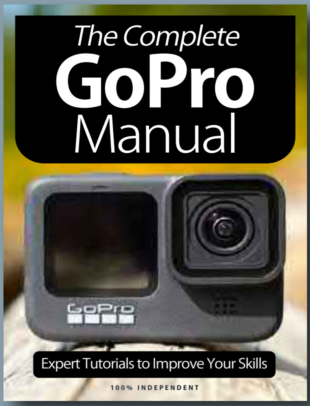
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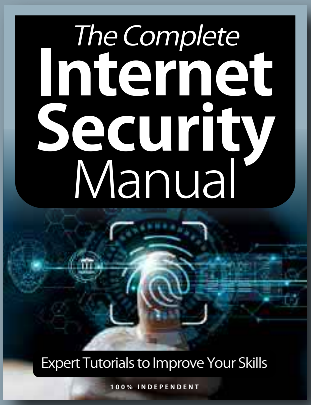
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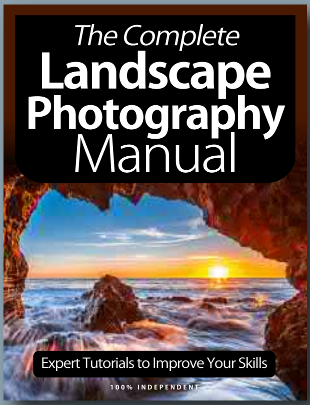
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The Complete **Cloud Computing** Manual

Cloud computing is one of the most important advancements of digital technology in the last decade. With the cloud we're able to help science by crunching huge numbers and volumes of data, from discovering the secrets of the universe to trying to predict the next pandemic, to simply providing a safe and secure repository for our personal files and information.

The cloud is all-powerful, but it's also our human to digital link to the next stages in computing technology: AI. With the cloud, we're creating the evolution of machine learning which will help us through the coming years as we rely more and more on technology to help us in our daily lives.

In this book you'll discover what the cloud is, how it works, and how it can benefit you can your business. We look at the major players in cloud the storage market, and reveal in-depth analysis of key features. There's guides on how to create your own cloud, how to use Google's Home devices, and tons of information that will get you up to date with the latest in cloud terminology and technology.

Read on, and let's see what makes up the cloud and how it does and will continue to affect our everyday lives in this modern digital age.

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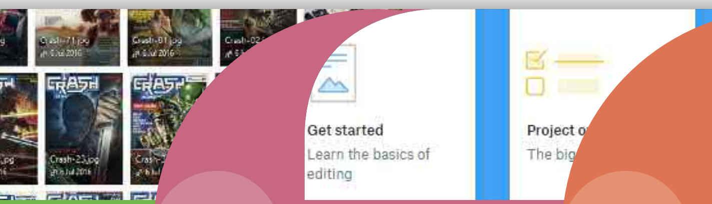

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What can you get from the Cloud and what do all those bewildering acronyms mean. You'll find out here.

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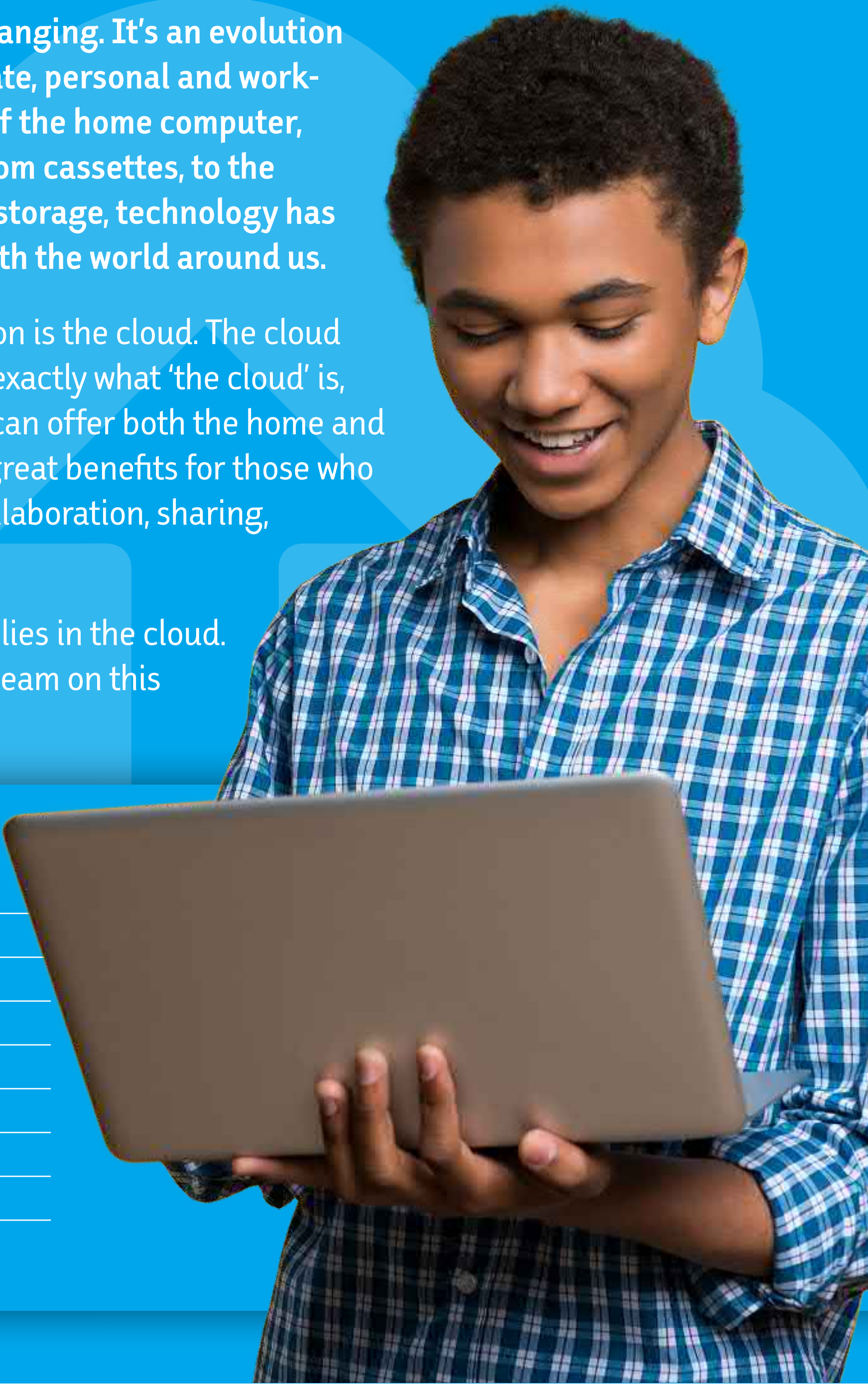
Business users, why even bother with a Cloud solution? We look at why the Cloud is a good choice for you.

What is Cloud Computing?

The way we use technology is ever changing. It's an evolution of how and where we access our private, personal and work-related data. From the earliest days of the home computer, accessing data and entertainment from cassettes, to the rise of the Internet and terabytes of storage, technology has revolutionised the way we interact with the world around us.

One form of this technological evolution is the cloud. The cloud is a term used often without knowing exactly what 'the cloud' is, what it does, how it works and what it can offer both the home and business user. The cloud offers many great benefits for those who use it. Storage, email, development, collaboration, sharing, streaming; the list goes on.

The future of work and entertainment lies in the cloud. So let's see what silver linings cast a gleam on this modern way of life.



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The Definition of the Cloud

What is the cloud? Where is it? What can you do with it? How does it work? These are questions that both home and business users ask regularly. The term 'cloud computing' has been bandied about for so long, it's become just another technology phrase. But what does it really mean?

SILVER LININGS

The meaning of the cloud has changed somewhat in recent years, more as it became the new buzzword that pundits and marketing executives liked to throw about. In its most basic, layman's terms, cloud computing is simply accessing a form of digital resource, or service, that isn't installed locally on your computer.

For the home, consumer user, that could mean accessing Gmail, Google Drive, Dropbox, or, in some circumstances, even viewing content through the likes of Netflix or listening to music via Spotify. It's a loose interpretation of what a cloud is, but essentially, it's the same.

From the Small Medium Business (SMB), or Small Medium Enterprise's (SME) point of view, it's a way of consolidating your digital resources and mission-critical content into an always-available, online and accessible solution. This way, mobile workers and clients can access the company content, and you don't need to employ technical expertise to maintain the company servers and hardware continually. The ability to offer those shared resources without the technical or financial impact of setting it up, or keeping it maintained, is one of the main draws of using cloud computing over the more traditional setup of an air-conditioned room full of servers; therefore making it a more appealing proposition to both consumer and SMB/SME users.

In 2011, the National Institute of Standards and Technology (NIST) brought together a final definition of the term cloud computing. "Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications and services). It can be rapidly provisioned and released with minimal management effort or service provider interaction."

The NIST went on to list five essential characteristics of cloud computing: on-demand self-service, broad network access, resource pooling, rapid elasticity or expansion, and measured service. Furthermore, there are three listed Service Models: software, platform and infrastructure, and four Deployment Models: public, community, hybrid and private.

The cloud, therefore, has quite a broad definition, encompassing pretty much everything we do and interact with on a daily basis. Throughout this book, we'll take a more in-depth look into the cloud. We'll discover what it consists of, how it works for you as an individual or business user, and how we can build our own cloud service.

CLOUD BENEFITS

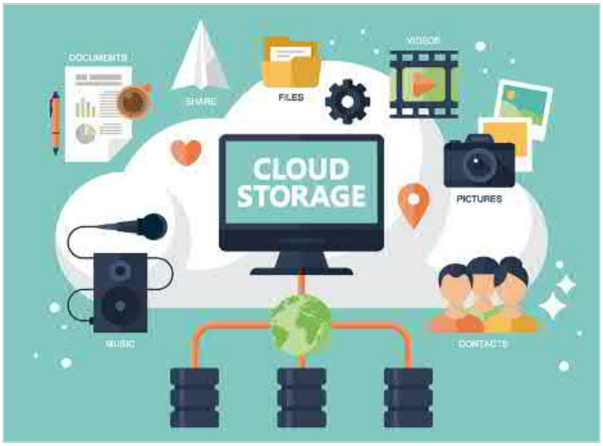
In brief, here are some of the main benefits a company or an individual can expect from cloud computing technologies and services.

PAY AS YOU GO

“Pay as you go”

SECURITY AND DISASTER ASSISTANCE

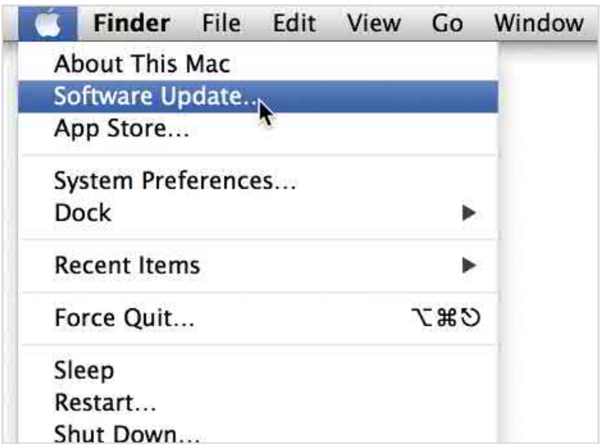
OFF-SITE DATA STORAGE


DOCUMENTS
SHARE
FILES
VIDEOS
CLOUD STORAGE
PICTURES
MUSIC
CONTACTS

LOWER COST OF OWNERSHIP

ACCESS FROM ANYWHERE

AUTOMATIC AND EASILY UPGRADED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Edit
View
Go
Window
About This Mac
Software Update...
App Store...
System Preferences...
Dock
Recent Items
Force Quit... ⌥⌘⎋
Sleep
Restart...
Shut Down...

History of the Cloud

Despite the cloud being a fairly new technological term, you may be surprised to discover that the concept behind it can be traced back almost to the very beginnings of the modern computer age.

FROM CUMULUS TO CIRRUS

The considered and accepted evolution of the cloud, from concept to daily use, starts as far back as the 1950s.

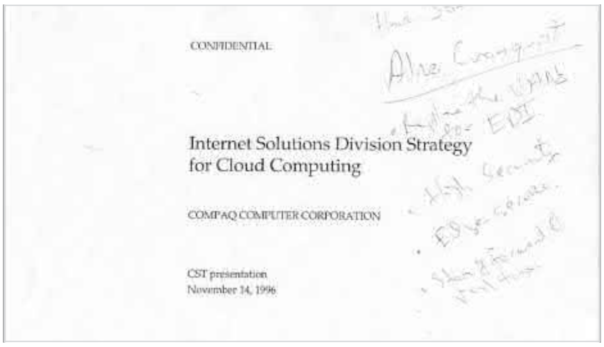
1955 According to a popular myth, John McCarthy, the computer scientist who coined the term 'artificial intelligence', dreamed up the concept of computing time-sharing. In those days, computing cost millions of dollars, so McCarthy came up with the idea of renting time-shared computing resources to companies who couldn't afford the technology. This moment is regarded as the beginning of the cloud concept.

1969 J.C.R Licklider developed ARPANET (Advanced Research Projects Agency Network), a network that eventually became the basis of the Internet. Using McCarthy's initial concept, Licklider's vision was "for everyone on the globe to be interconnected and accessing programs and data at any site, from anywhere".

1972 IBM developed its mainframe VM/370, or Virtual Machine Facility/370, system in 1972. Using the Hercules Emulator program, scientists were able to access the VM/370 in multiple virtual machine states all from a single system.

1980-1989 Throughout the 80s, the home computer boom and improved communications technology saw consumers and business users accessing remote resources via 300 bits-per-second modems. Ethernet was standardised, and through MS-DOS, Novell and other companies, resources housed on servers elsewhere in the world became accessible to all through Bulletin Boards and the like.

1990 - 1998 The Internet grew exponentially throughout the 90s. As a result, the first instance of the term 'cloud computing' was used by a group of Compaq Computer engineers. It was in a 1996 presentation entitled 'Internet Solution Division Strategy for Cloud Computing', and was a vision for the company's future business model.



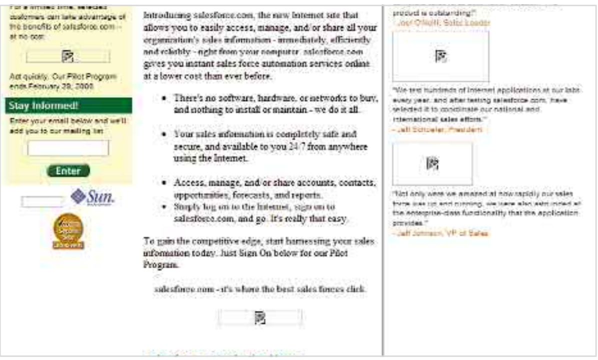
CONFIDENTIAL

Internet Solutions Division Strategy
for Cloud Computing

COMPAQ COMPUTER CORPORATION

CST presentation
November 14, 1996

1999 In 1999, the cloud computing concept began in earnest with the launch of Salesforce.com. Salesforce used the now maturing Internet to offer shared sales information for a company, along with collaboration, storage and reporting through a web-based portal. This initiative paved the way for other companies to deliver both apps and enhanced content over the Internet.



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product is outstanding!"

"We test hundreds of Internet applications at our labs every year, and after testing salesforce.com, have selected it to coordinate our national and international sales efforts."

"Not only were we amazed at how rapidly our sales force was up and running, we were also astonished at the enterprise-class functionality that the application provides."

2002 Another significant milestone in the cloud's history is the launch of Amazon Web Services in 2002. This service provided a cloud-based suite of resources that ticked every aspect of the cloud definition. It offered storage, computation, and virtualisation and was quickly expanded.

amazon
web services

2006 Expanding on the Web Services model, Amazon launched its Elastic Compute Cloud (EC2) in 2006. EC2 was designed to provide scalable resources in the cloud and provided the users the ability to configure the service with minimal management.

amazon
web services™
EC2

2006 - 2012 Google's growth and domination of the Internet saw the company releasing its Google Apps cloud-based services in 2006. Later, in 2011, Apple announced its own cloud storage solution, Apple iCloud. And in 2012, Google Drive was launched, bringing together all the cloud definitions under a single service.

Google™ Apps
31

2012 - 2017 The use of more powerful mobile devices, better networks and faster access to the Internet has resulted in a considerable cloud boom in recent years. Estimations put the money spent on cloud services, at the end of 2016, in the region of $1.4 trillion and that growth isn't looking to slow down anytime soon.

THE CLOUD IN NUMBERS

The cloud and all the services relating to cloud technologies have some pretty big numbers associated with them. Here are some interesting factoids about the cloud.

$500bn

Public cloud spending will grow to nearly $500 billion by 2023.

An estimated **80%** **of all companies** will be using a cloud service by the end of 2021.

3:12
All iCloud

Notes

There are 2.71 billion smartphone users in the world, all of which use some form of cloud technology.

2020

60-70%

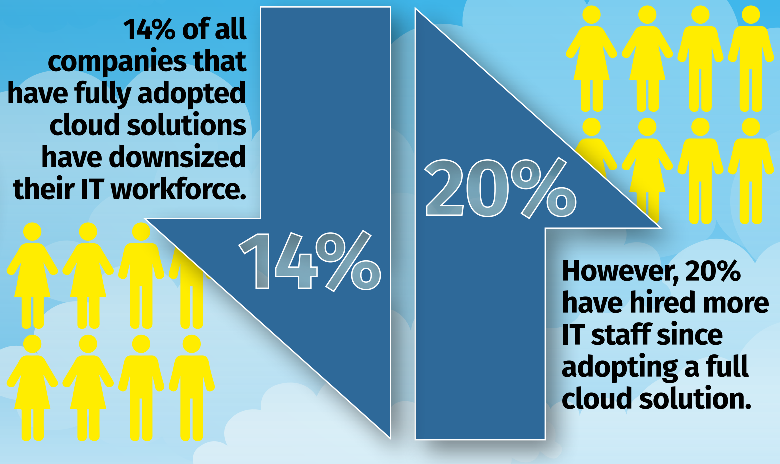
It is estimated that 60-70% of all IT enterprises will be investing in cloud-based solutions by the end of 2020.

85%

85% of all new software developed in 2020 will be for cloud delivery.

95%

It is estimated that by the end of 2020, 95% of all workloads will be cloud-based.



14% of all companies that have fully adopted cloud solutions have downsized their IT workforce.

However, 20% have hired more IT staff since adopting a full cloud solution.

ENTERPRISE COMPANIES WILL SPEND **33%** MORE ON CLOUD SERVICES AND SOLUTIONS IN 2020 OVER 2019.

ACCORDING TO STATISTICS, USING CLOUD TECHNOLOGIES OVER TRADITIONAL SERVERS CAN CUT COMPANY IT COSTS BY UP TO **65%**.

52% OF ALL ENTERPRISES SPEND MORE THAN **$1.2 MILLION PER YEAR** ON CLOUD SERVICES.

It is estimated that globally, over $25 billion was spent on Amazon Web Services in 2019.

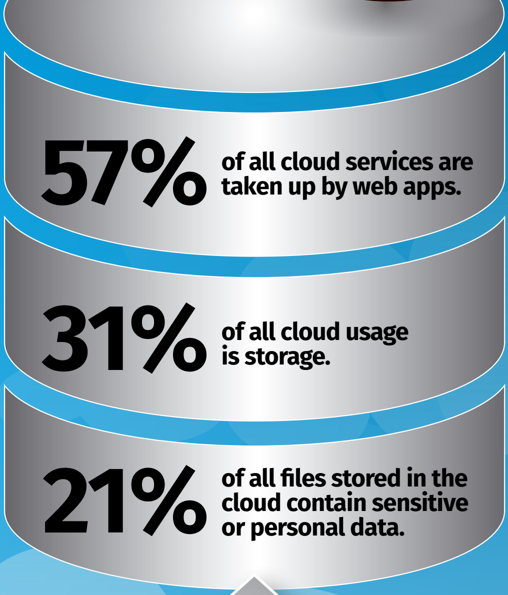
58% **of all businesses that utilise the cloud do so as a Hybrid cloud solution.**

Global IT spending on cloud solutions will grow by 3.7% in 2020.

28% **Some companies state that they've seen increased profits of up to 28% from using cloud services.**

35% **of all current companies express concern over cloud security.**

Every 0.5 of a second, an IT service is delivered through the cloud.



57% **of all cloud services are taken up by web apps.**

31% **of all cloud usage is storage.**

21% **of all files stored in the cloud contain sensitive or personal data.**

Sources:
IDC, Gartner, Ovum, Bain & Company, KPMG, Datasharp, IBM

Types of Cloud Services

The cloud offers different services based on what the user or company demands. Its most basic use is simple storage, as seen in Google Drive, Dropbox etc. Its design, however, also means that the technology can become remarkably complex the more you delve into it.

ON-DEMAND AVAILABILITY

Cloud services come in many guises and bewildering acronyms. Here are ten of the more popular cloud services and what they mean exactly.

GAAS GASS (Gaming As A Service) is set to take more of a foothold in 2020, with the launch of Google Stadia and Microsoft's Project xCloud; enabling the player to launch any title in the company's library and play them on various devices (PC, tablet, phone etc.) over their Internet connection. It's said that if GAAS works well beyond 2020, the console could become obsolete.

CAAS CAAS (Communications As A Service) sounds more complicated than it actually is. Simply put, CAAS is a cloud-based telecoms, messaging and video conferencing solution that uses a company mobile phone plan, with cloud integration to the company's resources. Skype is another remote video calling service and, at a push, so are Facebook and Twitter.

DAAS DAAS (Desktop As A Service) enables the worker to use their main desktop from any device anywhere in the world. This is desktop virtualisation; you access your Windows, Mac, or Linux desktop via the cloud, along with all your icons, work, shortcuts, etc.

DBAAS DBAAS (Database As A Service) leaves the administration of a company database to the cloud service provider. Instead, workers can concentrate on using the database, while companies can cut out the DB admin overhead.

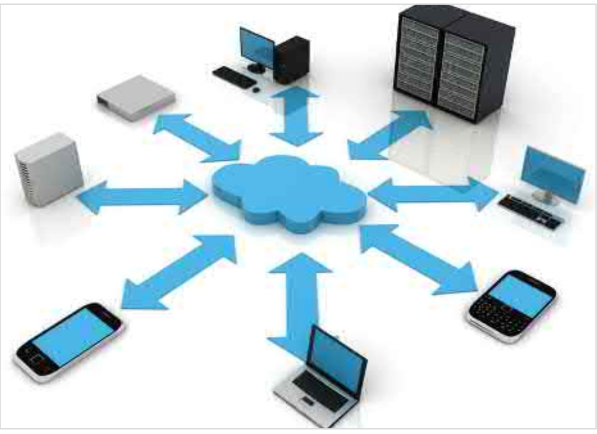
HAAS HAAS (Hardware As A Service), although somewhat different from other cloud-based solutions, allows a company to rent all of its hardware from the provider; computers, printers, phones, tablets, etc. are all under lease from the supplier.

PAAS PAAS (Platform As A Service) is the combination of both hardware and software development. This service offers developers a platform to code and test their software on various hardware and operating system models.

IDAAS IDAAS (Identity As A Service) is a cloud-based identity and user management service that can help secure access to both virtual and physical resources through various layers of security. For example, thumbprint reader software and iris detection access are handled via IDAAS.

SAAS SAAS (Software As A Service) covers the likes of Gmail, YouTube and even Netflix. It gives access to a full service housed in the cloud; the company needs to either populate it or simply pay for what they want. Essentially, it's the entire cloud setup under a single title.

IAAS IAAS (Infrastructure As A Service) covers servers and networking in the cloud. A company can have all, or part, of its core network based in the cloud, offering different resources to different users.



STAAS STASS (Storage As A Service) is where you simply buy cloud-based storage. For example, a company could provide STASS for all its workers, allowing them access to cloud storage as opposed to the company's in-house storage. Google Drive and Dropbox are examples of STASS.

Cloud Problems

While the cloud may sound like the ideal solution to any company, or individuals', technology needs, it isn't without its concerns. Due to the nature of the cloud, an issue with just a single element could effectively reduce your business to a virtual standstill.

CONCERNS IN THE CLOUD

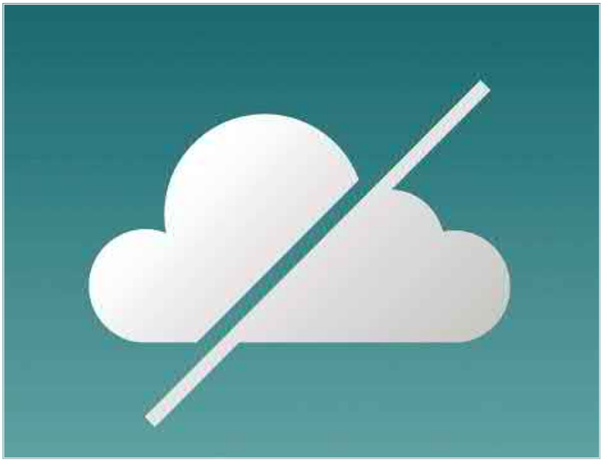
With the responsibility of entire company fortunes and user's private data, cloud providers do their best to limit problems; but they do appear from time to time.

UPGRADES

While unquestionably beneficial, automatic upgrades in the cloud can have a negative effect too. For example, in 2011, Amazon's EC2 suffered a huge outage as a planned upgrade went horribly wrong. Storage went off-line and, in extreme cases, some customers lost data.

NOT ALWAYS ONLINE

Working from the cloud is all fine and well, but what happens when the connection goes down? A lack of Internet access can leave entire companies with employees staring at blank screens.



MOUNTING COSTS

Although the initial cost of cloud ownership is much cheaper than a traditional on-site solution, as the service grows, so can the cost to the company. Social gaming company Zynga moved away from using cloud-based services when the costs started to rise beyond $150 million.

CLOUD PROVIDER OUTAGE

Similarly, what would happen should the cloud provider's access to the outside world fail? Thankfully, due to geo-redundancy, it doesn't happen too often. However, even big names such as Microsoft, Google and Amazon have lost connection to cloud servers in the past.

HTTP Error 503
The service is unavailable

CONTRACT WOES

Although the situation is getting better, you, as a company or user, are at the mercy of the cloud providers' terms and conditions. If you need cloud access 99% of the time, but the provider only offers 80%, then you're stuck with the contract, or you'll need to look elsewhere.

GOVERNMENT ACCESS

New snooping and anti-privacy laws in many countries mean that, at the government level, it is possible to access your cloud data. Naturally, the government in question requires a warrant, but, once issued, many cloud providers are powerless to do anything. Microsoft, for example, moved some services to different jurisdictions to avoid U.S. Government intervention.

ONLINE HELPDESK

Cutting down on in-house IT and technical staff may sound like a great cost-cutting exercise as using a cloud provider means all your technical needs are handled elsewhere. However, it's not always the best solution. Having technical staff on the ground is always superior to phoning about an issue or request.

LOCKED INTO THE CLOUD

The cloud model presents a valid case for many businesses, what happens, however, when you want to scale back to an in-house solution? The costs of migrating data, buying equipment, hiring staff and suchlike can quickly mount.

HACKING

Cloud computing is very secure, but sometimes there are examples where data is hacked and presented to the world. The infamous Frappening incident, where personal pictures of numerous celebrities were leaked from hacked Apple iCloud accounts, is one that still haunts the media and the users to this day.

```
 i in range(1, 1000):
ack()
ort socket, sys, os
nt "][YOU HAVE BEEN HACKED!!!"
nt "injecting " + sys.argv[2];
 attack():
d = os.fork()
 socket.socket(socket.AF_INET,
onnect((sys.argv[1], 80))
```

CHANGE ISN'T ALWAYS GOOD

Alterations to cloud-based applications, front-end web pages, portals and other elements in constant use, can be damaging. People do tend to fear significant changes in technology; take Windows 7 to Windows 8.1, or different Office versions, for example. Retraining and firefighting technical issues can be costly in both time and expertise.

Why Cloud?

Why should you use a cloud computing solution when having your own in-house IT setup is more traditional? What is it that makes using a cloud provider more logical in today's interconnected world?

AHEAD IN THE CLOUD

We've touched on a few areas and benefits of using a cloud provider for your business and home use, so let's break these down a little more.

FLEXIBILITY

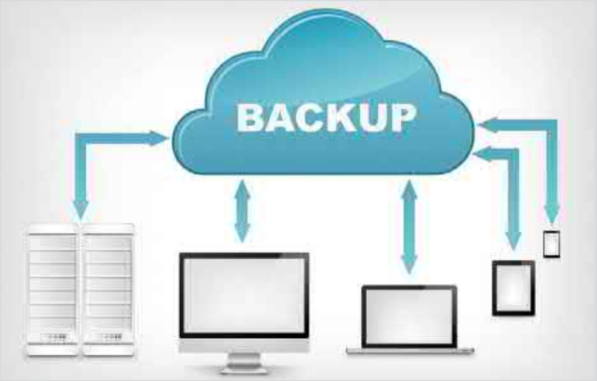
Cloud-based solutions are incredibly flexible in their design. They can grow as your business needs increase and they can be scaled back, should you ever require it. It's this level of operational agility, or elasticity, that makes a cloud solution perfect for the business and consumer IT model.

AUTOMATIC UPDATES

Updating a server is a time-consuming and comparatively stressful affair. Making sure the relevant security patch is in place and that, once applied, everything works the same way as it did previously takes considerable planning. Using a cloud, on the other hand, removes that stress, as the engineers off-site handle the cloud's servers.

DISASTER RECOVERY

Both businesses, of any size, and home users should be concerned with building a robust disaster recovery solution. In the event of a localised catastrophe, the loss of personal files or critical business data is a nightmare situation. However, recovering it can be quick and easy if it's stored in a remote cloud location.



REDUCED COSTS

Cloud computing is a pay-as-you-go model, in that you simply invest in what you need at that particular point. Using this, in conjunction with the elasticity of a cloud, means that you'll only pay for additional services or storage as you and your business grow.

COLLABORATION

Using the cloud means that you and your co-workers can gain access to the company's data as a single unit. This makes collaborating on a project with remote workers, or teams on the other side of the planet, far easier. Data updates are in real-time, and the workflow is far less confusing.

SECURITY

Although there are incidents of cloud hacking, keeping data in the cloud is regarded as being far more secure than having it available locally. Lost laptops, USB flash drives, hard drives recovered from old computers can all be a huge security risk, with each containing data, bank details and images.

ACCESS FROM ANYWHERE

As long as an employee, or individual, has access to the Internet, they can access the cloud solution behind the company. This allows the utilisation of expertise from around the world without the expense of relocation. Home users can also upload images and documents from any Internet available device.

COMPETITIVENESS

Potentially, using a cloud model to run your business can significantly improve your competitiveness in the marketplace. You'll have access to 24/7 servers, cutting edge applications, and you can keep the costs down by only paying for what you use.

DOCUMENT CONTROL

When you have numerous users all working off a single document, you'll eventually come across conflicting copies and formats. By using a cloud model, document control is kept in line by all users working from a single, stored document source. Also, the digital storage cost of multiple documents emailed to, and from, users is drastically reduced.

GREEN COMPUTING

The datacentres that house cloud services are vast, energy-hungry places. However, since you only use the computing resources for which you pay, as does everyone else in the cloud, the overall energy required by the datacentre is as minimal as possible. No wasted power makes for a greener carbon footprint than a traditional server room setup.

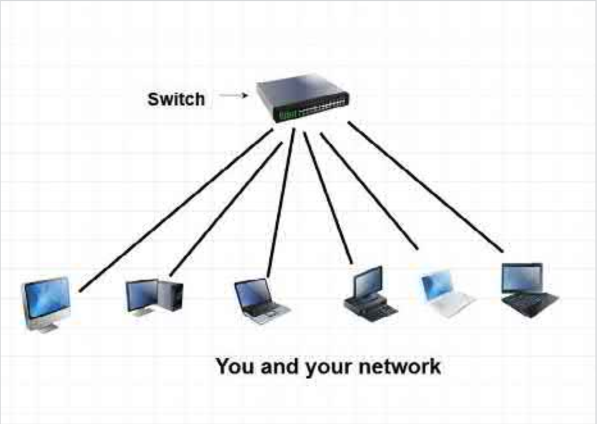
Anatomy of the Cloud

Talking about connected technologies, all accessing a central cloud infrastructure across several geo-redundant datacentres can be a little difficult to visualise. How is it all connected, where do you and your computer or device fit into the big picture?

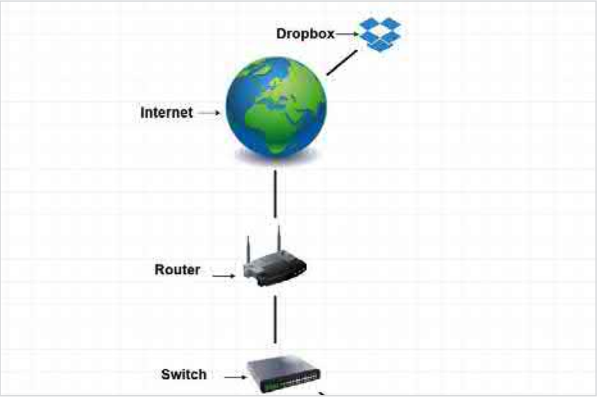
CLOUD STRUCTURES

Let's take a moment to build the anatomy of the cloud from the ground up. Starting with you, the user, sat in front of your computer or device.

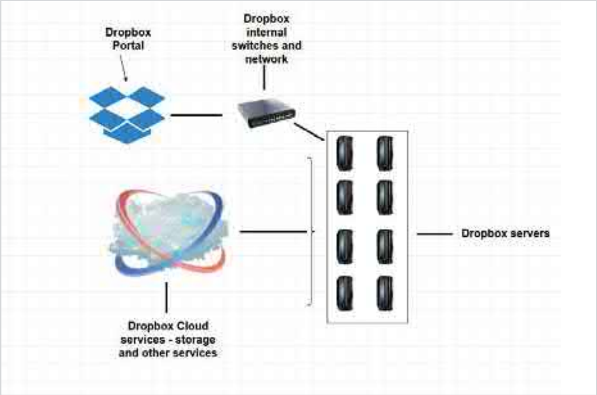
STEP 1 While connecting to a cloud resource may seem seamless, there's actually a lot going on in between you and where the actual item you're viewing is stored. Starting with you, either as a home user or in the workplace, there's the PCs, Macs, tablets and so on all connected to a home or work network via a switch.



STEP 2 The switch, or switches, are connected to a router, which in turn provides the link to the Internet via an ISP (Internet Service Provider). We'll view the Internet here as a separate connection, where you'll browse for websites and such. Connection to a cloud service is usually through a portal or website; let's use Dropbox as an example here.



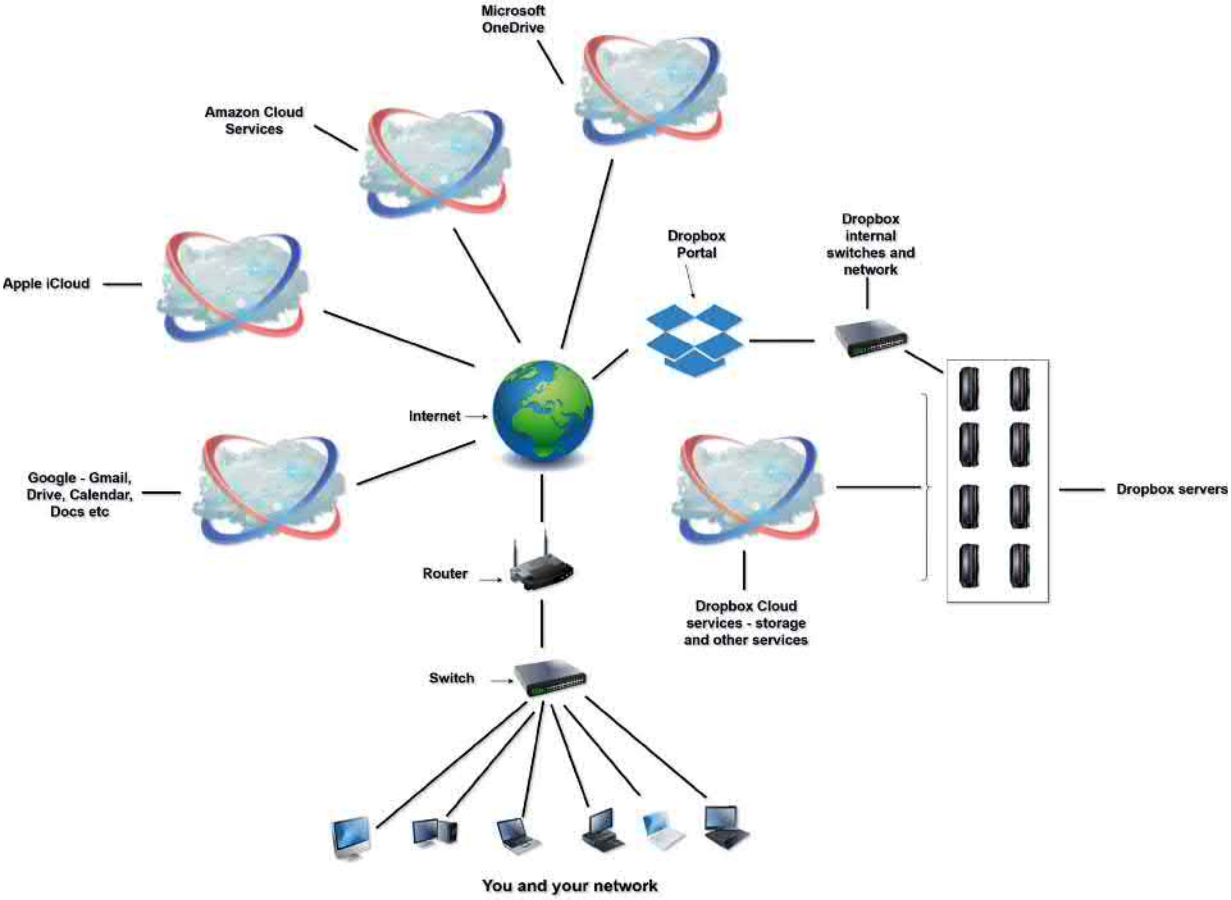
STEP 3 Dropbox is naturally also connected to the Internet, through a similar sort of process (although it's a little more complex for something as big as Dropbox). The Dropbox portal, to put it simply, connects to the Dropbox internal network of servers, which, through various layers of software, all combine to form the cloud resource you're accessing.


Dropbox Portal
Dropbox internal switches and network
Dropbox servers
Dropbox Cloud services - storage and other services

STEP 4 Essentially, each of those Dropbox servers combines to form a huge cluster of available storage and computing power. The software that the Dropbox servers run to the user, via the portal front end, is what makes up the cloud. These clusters of servers can be anywhere in the world.

STEP 5 Although the technology used in each of the cloud services you'll access is a complex system of security, access, scanning, load balancing and performance, the basic principle is the same. Any cloud service is simply a datacentre with hundreds of connected servers providing storage and processing power, designed for easy access to the public and businesses.

STEP 6 Now take the basic anatomy of the entire structure and times that by several million. This is, to a certain degree, the entire make-up of the world's cloud services; each cloud provider offering space on its cluster of servers for storage, virtualisation, telecoms, email and all other types of cloud services available.


Microsoft OneDrive
Amazon Cloud Services
Apple iCloud
Dropbox Portal
Dropbox internal switches and network
Internet
Google - Gmail, Drive, Calendar, Docs etc
Dropbox servers
Router
Dropbox Cloud services - storage and other services
Switch
You and your network

Basic Consumer Cloud Services

The cloud focuses a lot on businesses, and what a company can get from it to make itself more successful, with often minimal regard to what the home user can get. Thankfully, the consumer isn't left out in the cold where the cloud is concerned.

HOME CLOUDS

Agile business models and elaborate disaster recovery plans aren't always at the forefront of what the average user wants from a cloud service. So what can the consumer expect?

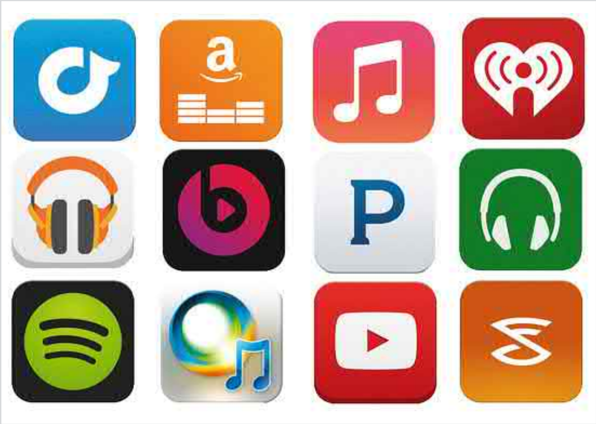
STORAGE

The most significant section of the consumer cloud market is undoubtedly online storage. The likes of Dropbox, Google, Microsoft and Apple all cater for the home user with 5GB, 100GB or more, in some circumstances, of storage available. And it's all accessed via a friendly, and easy to use, portal that integrates all your devices.

Cloud Storage

MUSIC STREAMING

Thanks to cloud services we no longer have to physically own the music to which we listen. Music streaming services, such as Spotify and iTunes, all offer the ability to push your musical choices to any device that's connected to the company portal.

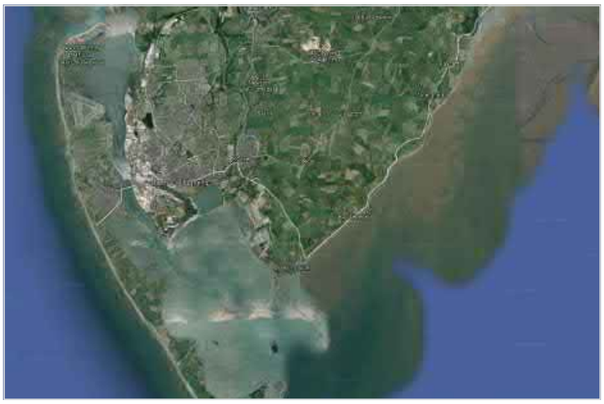


EMAIL ACCESS

The second biggest consumer cloud service is email. Webmail has taken off in the last decade or so, moving away from traditional ISP or work-based email, to offer the user an area where space is plenty and very few restrictions apply.

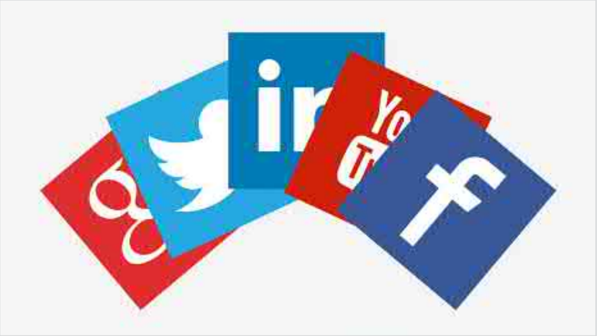
MAPPING AND GPS

Looking for a new house? Most users will automatically open up Google Maps, Bing Maps, or Apple Maps to view their potential new home - and see just how big the back garden really is. Likewise, GPS from such sources as Here, Waze and OpenStreetMap are helping the consumer find their way around.



SOCIAL MEDIA

We're all familiar with social networking, but it doesn't always strike people that social media is a cloud-delivered service. Loosely speaking, it's a cloud communications service (CAAS), where users connect to others and share information via a central service or portal - such as Facebook, Twitter, etc.



VIDEO STREAMING

Netflix is by far the most popular of the video streaming, cloud-based services. In 2015, the company shut down its last datacentre and now adopts a 100% cloud-based structure, being wholly reliant on Amazon's Web Services.

GAMING

Since cloud computing has become significantly more powerful, it's now possible to enjoy gaming over the cloud. GAAS, or Gaming As A Service, is a fast-growing market where you'll be able to play anything from triple-A titles to past classics; all from within a cloud service and streamed to PCs, tablets and even phones.

REMOTE ACCESS

Being able to access your, or someone else's, desktop remotely is a great help to those who need to share a screen or assist a family member with a problem. The likes of TeamViewer and other companies make this easy through its cloud-based services.

REMOTE ACCESS

ANONYMITY

Gaining in popularity is VPNAAS (Virtual Private Networking As A Service), where a cloud-based service is used to hide a user's IP address, allowing them to gain access to content held in other countries. It's still early days, but the service is growing.

PRINTING

Cloud printing is a service that allows you to print over the Internet from anywhere, on any device. You can add and share your printers, and you can print from any type of application. Google Cloud Print is one such example, with the likes of HP following suit.

26 **Google Drive**
Discover one of the longest-running cloud storage solutions.

34 **Dropbox**
The go-to business cloud storage solution.

40 **iCloud**
One of technology's greatest success stories.

Top Cloud Storage Providers

Cloud storage is the technology's most utilised service, from individuals to enterprise-sized companies. There are hundreds of cloud storage solutions available, some are fantastic, offering the user or company a wealth of features for a very reasonable price. Others, though, aren't so good. But which to use, subscribe to, or avoid?

Throughout this section we take an in-depth look at a collection of the top-rated cloud storage solutions, and see which are as a good as they claim, and which could do with a bit more work.

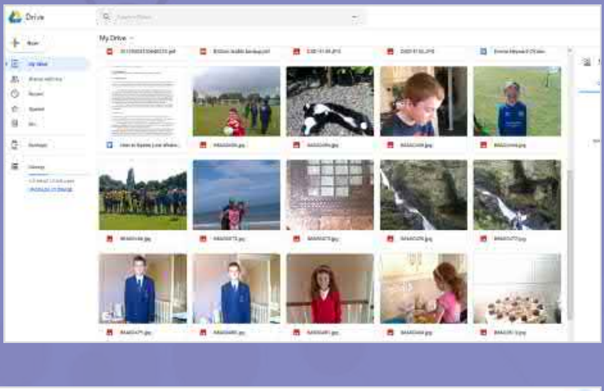
26 Google Drive
28 MediaFire
30 Sync.com
32 MEGA
34 Dropbox
36 pCloud
38 OneDrive
40 iCloud
42 Amazon Drive

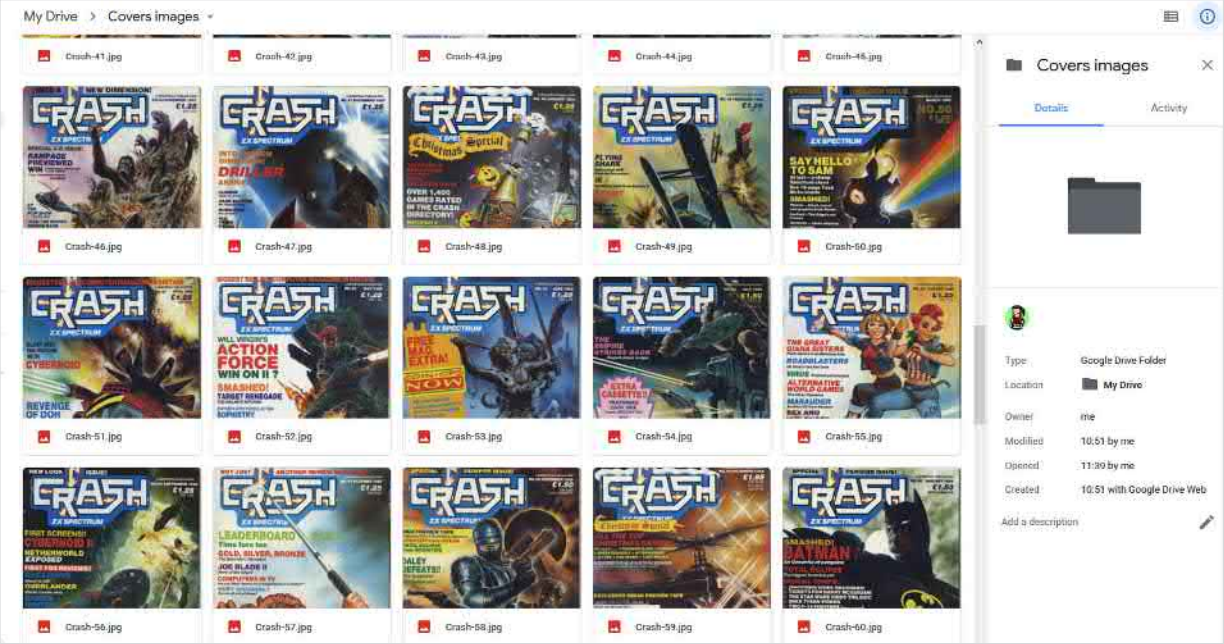
Google Drive

Google Drive was launched on April 24th 2012, which makes it one of the longest-running cloud storage solutions. It's cross-platform, easily implemented into Google's other apps, and offers the user a choice of storage capacities; from the free 15GB through to 30+ terabytes, via optional payment plans.

There's no escaping the fact Google has pretty much become a synonym for the Internet; with over 2.5 billion active accounts recorded in 2019, the service is set to grow considerably over the coming years.

Google's storage solution, Drive, is just one element of the company's cloud services, but it sits at the core of everything. Back in 2018, Google announced that Drive had stored over 2 trillion files, in 2019, the company was a little vague with its numbers, but it did report that, according to StatCounter, Drive now hosts nearly 10 trillion files; which is an impressive amount. However, it hasn't always been sunshine and roses for Google.




My Drive > Covers images
Crash-41.jpg
Crash-42.jpg
Crash-43.jpg
Crash-44.jpg
Crash-45.jpg
Crash-46.jpg
Crash-47.jpg
Crash-48.jpg
Crash-49.jpg
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Crash-54.jpg
Crash-55.jpg
Crash-56.jpg
Crash-57.jpg
Crash-58.jpg
Crash-59.jpg
Crash-60.jpg
Covers images
Details
Activity

Type Google Drive Folder
Location My Drive
Owner me
Modified 10:51 by me
Opened 11:30 by me
Created 10:51 with Google Drive Web
Add a description

IN THE BEGINNING...

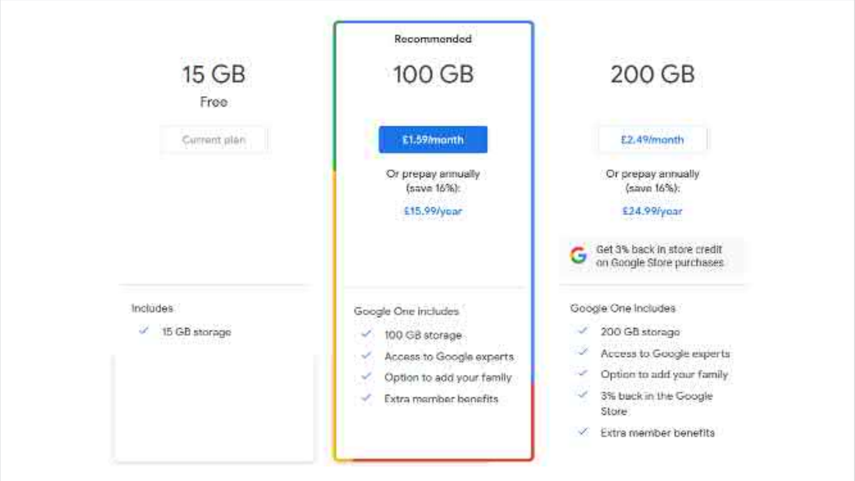
When the service launched back in 2012, criticisms were aimed at the company's storage policy and Terms of Service. Essentially, the language used granted Google the rights to reproduce, use and create derivative works from the content stored within Google Drive. It's worth noting that the policy accepts that the original user retains intellectual property rights. The privacy community and many others raised concerns over Google's rights to use the information and data to create advertising and other services.

However, the case didn't go far. It was later revealed that Google's online cloud storage policies weren't as bad as some from other companies. And Google did clarify that, despite the language used in the policy, the rights were in place to allow it to: move the files around its farms of geolocated servers, cache the data for easy access to the users, and make image thumbnails when viewing the files. Obviously, since there are 'nearly 10 trillion files' now allegedly stored on Drive, the policy hasn't affected those using the service.

MOVING ON

The service launched with support for Android, Windows, and macOS as a web interface. Initially, there was mediocre support for Linux, and although there was an app that could sync, upload and so on to Drive from Linux computers, sadly the app wasn't further developed and as such it stopped functioning once Google started to update the Drive service.

2014 saw an overhaul of the web interface version of Google Drive, with a new look and significantly improved performance. It also simplified a lot of the common tasks, such as a drag-and-drop feature within Drive that enabled users to move files within folders and such. The functionality to download files locally from Google Drive was also drastically improved; allowing large files to be downloaded as multiple 2GB compressed files with improved naming structures.



15 GB	Recommended 100 GB	200 GB
Free		
Current plan	£1.59/month	£2.49/month
	Or prepay annually (save 16%): £15.99/year	Or prepay annually (save 16%): £24.99/year
		Get 3% back in store credit on Google Store purchases
Includes	Google One includes	Google One includes
✓ 15 GB storage	✓ 100 GB storage ✓ Access to Google experts ✓ Option to add your family ✓ Extra member benefits	✓ 200 GB storage ✓ Access to Google experts ✓ Option to add your family ✓ 3% back in the Google Store ✓ Extra member benefits

STORAGE

The amount of storage available on Google Drive was initially one of its best selling points. When first unleashed to the public, Google Drive's free 5GB of storage was significantly better than the competition, but it didn't take long for other cloud storage providers to latch on to the 5GB free model.

As the service matured, Google offered its users an unlimited number of photos at a maximum of 16 megapixels, and videos at a maximum resolution of 1080p, for free, using the High-Quality setting in Google Photos - which is shared space from Google Drive and Gmail. If a user reverted to the Original-Quality setting, then the Google Drive quota would start counting the megabytes used.

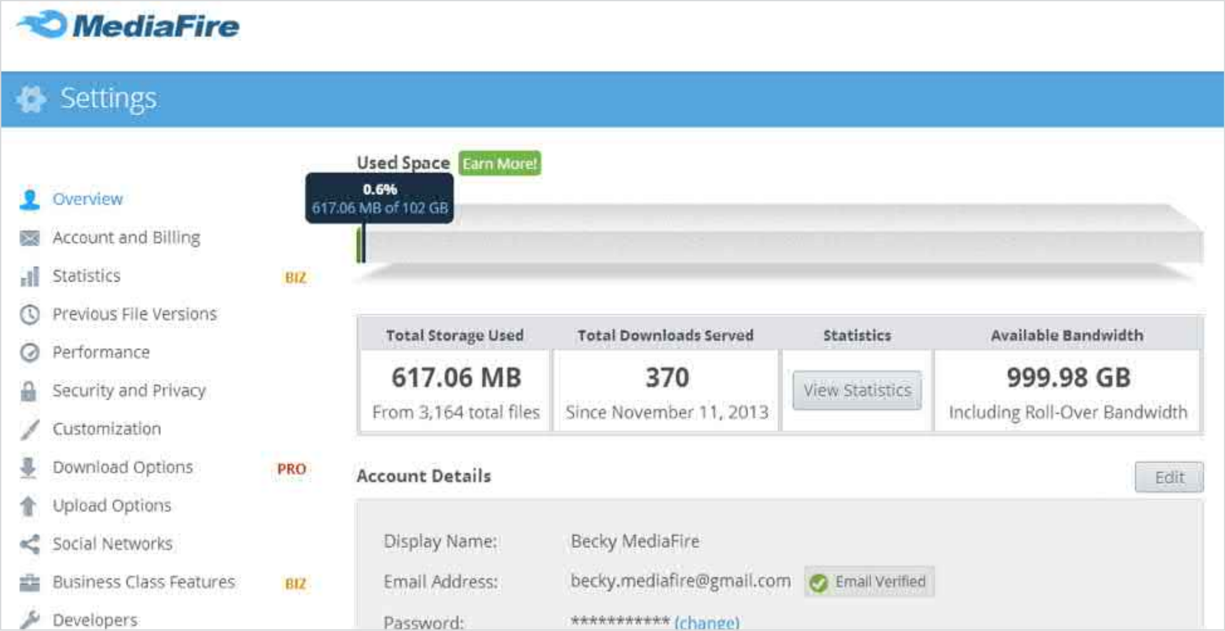
You can, for a price, increase the storage available. 15GB for free is still reasonably okay, but if you're using Google Drive for active backups, and storing lots of Gmail content, you're likely to start reaching the limits.

For the princely sum of around $299.99 per month, though, you can opt for the maximum consumer storage limit of 30TB (terabytes), which should keep the average user happy for quite some time.

Conclusion

Google Drive has been around for some time, and it's still considered the go-to consumer cloud storage service. It's easy to see why though, with its Internet presence, huge geolocation server farm capacities, massive user base, and continuous improvements, it's little wonder that Google Drive remains the top consumer cloud option.

MediaFire


MediaFire
Settings
Overview
Account and Billing
Statistics
BIZ
Previous File Versions
Performance
Security and Privacy
Customization
Download Options
PRO
Upload Options
Social Networks
Business Class Features
BIZ
Developers
Earn More!
View Statistics
Edit
Email Verified

Used Space
0.6%
617.06 MB of 102 GB

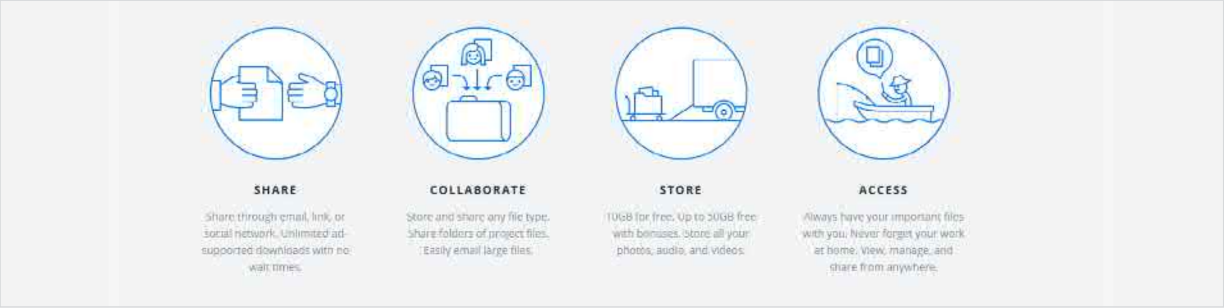
Total Storage Used	Total Downloads Served	Statistics	Available Bandwidth
617.06 MB From 3,164 total files	370 Since November 11, 2013	View Statistics	999.98 GB Including Roll-Over Bandwidth

Account Details

Display Name: Becky MediaFire
Email Address: becky.mediafire@gmail.com
Password: *********** (change)

Launched in 2006 as an Online Backup Service, and based in Texas, MediaFire has proved itself to be one of the founding cloud storage providers. Now with over 150 million users storing files on the MediaFire servers, the company is continually adapting and improving its services.

On launch, it was available for iPhone, android, macOS, Windows, and as a web interface, MediaFire's free cloud storage solution is certainly one to watch. There's a level of simplicity that makes MediaFire one to check out if you're thinking of moving on from the likes of Google or you just want another solution in place.


SHARE
COLLABORATE
STORE
ACCESS

Share through email, link, or social network. Unlimited ad-supported downloads with no wait times.

Store and share any file type. Share folders of project files. Easily email large files.

10GB for free. Up to 50GB free with bonuses. Store all your photos, audio, and videos.

Always have your important files with you. Never forget your work at home. View, manage, and share from anywhere.

SIMPLE BUT EFFECTIVE

Essentially, MediaFire offers a barebones approach to its cloud storage solution. There's a 10GB free plan available, but with some referral options, such as Tweeting the service, you can upgrade the amount of free storage to 50GB.

Upload speeds are very fast, mainly due to the company using geolocation servers, but also the fact that it's not as congested as Google Drive or Dropbox – despite the big companies having more servers available worldwide.

The company started with a desktop client that could upload, sync, download and so on. However, support for the app became costly, so now it uses a mobile and web client to access the user's files. Nevertheless, a desktop app isn't a deal-breaker; many users prefer to opt for a simple web interface, or mobile, over something installed on their desktop.

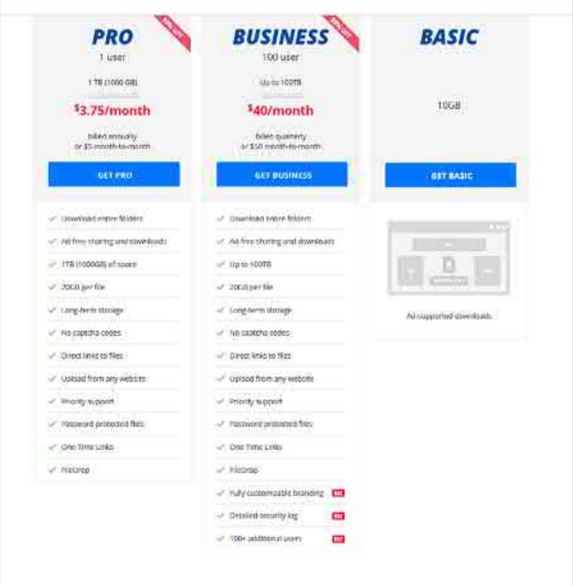
The mobile app lets you automatically upload, and backup, photos and videos to the MediaFire servers, after which you're able to preview them. The maximum upload file size is a decent 20GB, so unless you've got a sizeable video file in higher resolutions, you should be good to go.

However, it's worth mentioning that the service doesn't include any form of online office suite, such as with Microsoft's OneDrive and Google Drive. And it lacks third-party integration with other apps, so you'll need to manually upload any files created through an office suite.

PRICING

The initial 10GB is free, but there are Pro and Business options available. The Pro option features 1TB of storage, the ability to download entire folders, share files, password protection and more, and is available for $3.75 per month.

The Business option is quite surprising, as it offers up to 100TB of storage for a maximum of 100 users and costs just $40 per month. For this, you get all the features that Pro offers plus the additional 100 users, customisable branding and a detailed security log.



PRO	BUSINESS	BASIC
1 user	100 user	
1 TB (1000 GB)	Up to 100TB	10GB
$3.75/month	$40/month	
billed annually or $5 month-to-month	billed quarterly or $50 month-to-month	
GET PRO	GET BUSINESS	GET BASIC
✓ Download entire folders	✓ Download entire folders	Ad-supported downloads
✓ Ad-free sharing and downloads	✓ Ad-free sharing and downloads	
✓ 1TB (1000GB) of space	✓ Up to 100TB	
✓ 20GB per file	✓ 20GB per file	
✓ Long-term storage	✓ Long-term storage	
✓ No captcha codes	✓ No captcha codes	
✓ Direct links to files	✓ Direct links to files	
✓ Upload from any website	✓ Upload from any website	
✓ Priority support	✓ Priority support	
✓ Password protected files	✓ Password protected files	
✓ One Time Links	✓ One Time Links	
✓ FileDrop	✓ FileDrop	
	✓ Fully customizable branding	
	✓ Detailed security log	
	✓ 100+ additional users	

Conclusion

MediaFire may not have the feature-rich capabilities of Google Drive, or some of the other cloud storage service available; however, it's cheap and straightforward to use.

If you're looking for a service that doesn't have all the bells and whistles, is easy to use from mobile or web, and has good consistent upload speeds, then MediaFire is certainly worth exploring.

The bad points are: mediocre collaboration options, built-in office suite, desktop client, and limited sharing capabilities – and the free version does contain adverts. Although there are misses, with a little work, you're able to get 50GB of free storage as a backup, using this simple but effective cloud service.

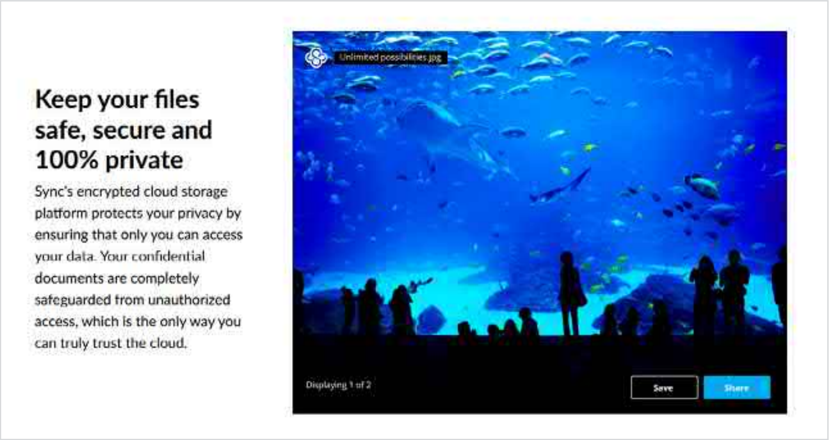
Sync.com

Sync.com is a Canadian company that was founded in 2011 by Thomas Savundra, Suhan Shan and Darius Anita, and advertises itself as a privacy-friendly, easy to use cloud storage solution. The base solution offers 5GB of storage alongside sharing and collaboration, real-time backup and sync, and the ability to access the service from anywhere.

The focus with Sync.com was to create a functioning cloud storage solution, while offering the user a complete package protected behind the company's unique end-to-end encryption. The free option of 5GB isn't the best available, but it's adequate for storing essential, sensitive, or personal data within Sync's higher-level encryption cloud.

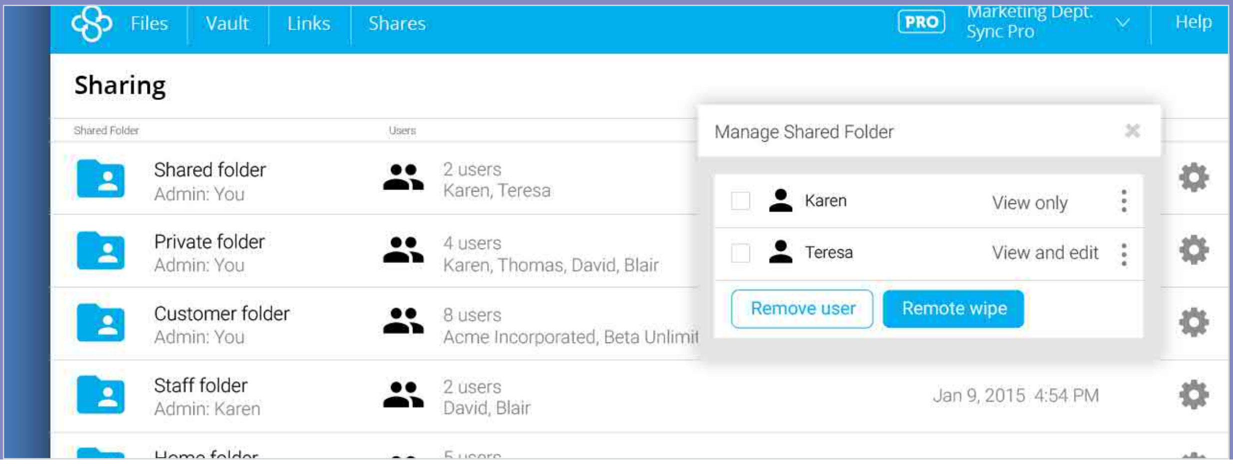
There's no upload or download limits on the free option, no third-party tracking, and file versions and recovery are limited to 30-days. You can additionally, password protect your files and create password protected sharing, along with two-factor authentication and the ability to create three team shared folders.

There's desktop integration available, along with mobile apps that include an automatic camera upload function. However, due to the company's tight approach to security, there's no API or third-party access to the cloud service. This means there's no integration with the likes of Microsoft Office, so you'll have to manually upload files and content created within these office suites to the Sync.com cloud.



Keep your files safe, secure and 100% private

Sync's encrypted cloud storage platform protects your privacy by ensuring that only you can access your data. Your confidential documents are completely safeguarded from unauthorized access, which is the only way you can truly trust the cloud.



Sharing

Shared Folder	Users	
Shared folder Admin: You	2 users Karen, Teresa	
Private folder Admin: You	4 users Karen, Thomas, David, Blair	
Customer folder Admin: You	8 users Acme Incorporated, Beta Unlimit	
Staff folder Admin: Karen	2 users David, Blair	Jan 9, 2015 4:54 PM
Home folder	5 users	

Manage Shared Folder

☐	Karen	View only
☐	Teresa	View and edit

Remove user
Remote wipe

SECURITY

The big selling point with Sync.com is the aforementioned heightened security. The service, incorporating the free option, includes At-Rest encryption and In-Transit encryption to the tune of AES 256-bit - meaning a brute force attack to gain access to the contents of the encrypted files would take a modern computer the current age of the universe to crack, around 13.9 billion years.

Added to that is the two-factor authentication, a company policy of zero-knowledge (no knowledge of what's stored in the service), and it benefits from Canadian privacy laws, so your data is protected by law and not allowed to be accessed by the likes of the Patriot Act, which is active in the U.S.

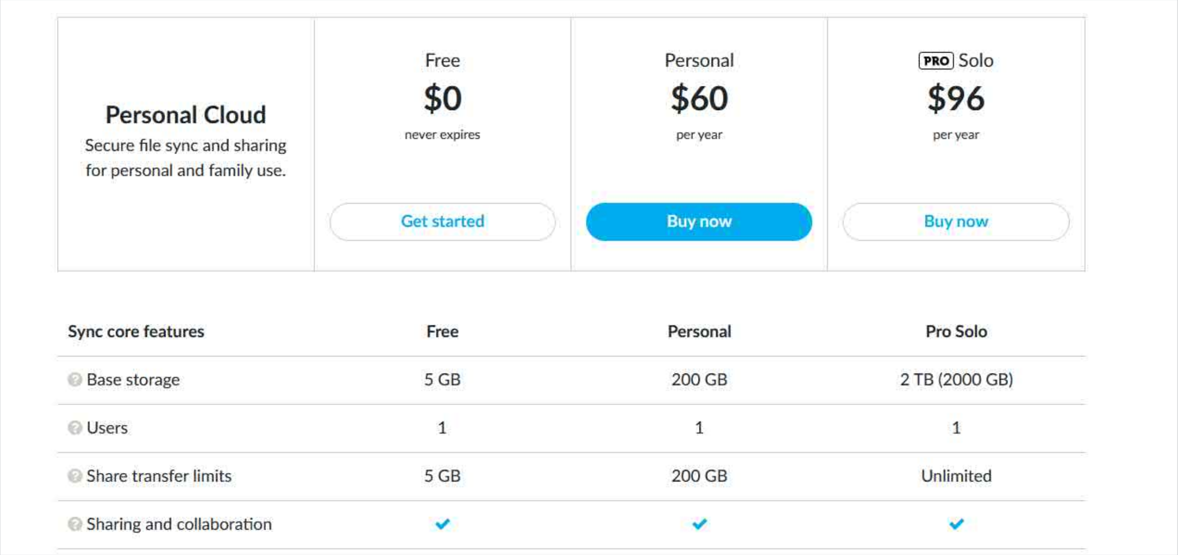
Another interesting feature is the service's versioning control, that will let you roll back any changes to a file for up to 30-days (more if you use the pay-for services). Any corruption to a file, either by accident or design (such as malware) can be reverted to a previous version if necessary.

PRICING

Higher grade storage solutions through Sync.com are available through different levels of pricing. There are Personal and Pro Solo options, for $60 and $96 per year respectively, that offer up to 200GB for the Personal and 2TB for the Pro Solo. Other advantages apply to the subscription plans, such as unlimited transfer limits, 120-day and 365-day file version control, and advanced sharing and collaboration features.

There's also a Sync Pro set of plans for business users: Solo at $10 per month, Teams from $5 per month (based on per user), and Enterprise from $20 per month (again, based on per user). The storage limits increase dramatically with each plan, from 3TB for the Solo, up to 10TB for the Teams, and a Custom storage option for the Enterprise plan.

Needless to say, the business list of features includes everything the other payment plans offer and more; with core features such as 99.9% uptime, year-long or custom level file version and recovery, and increased levels of both live and phone support.



Personal Cloud Secure file sync and sharing for personal and family use.	Free **$0** never expires	Personal **$60** per year	PRO Solo **$96** per year

Sync core features	Free	Personal	Pro Solo
Base storage	5 GB	200 GB	2 TB (2000 GB)
Users	1	1	1
Share transfer limits	5 GB	200 GB	Unlimited
Sharing and collaboration	✓	✓	✓

Conclusion

Sync.com is an interesting cloud storage solution. While it's not as all-consuming as Google, Microsoft, or Dropbox, it does have some excellent features that are well worth considering. For the personal consumer, the 5GB of storage may feel a little low, but the higher than normal levels of security and privacy make it worth exploring.

If you've got some valued files that you want to backup and protect, and keep away from potential prying eyes, then using Sync.com is a good option.

MEGA

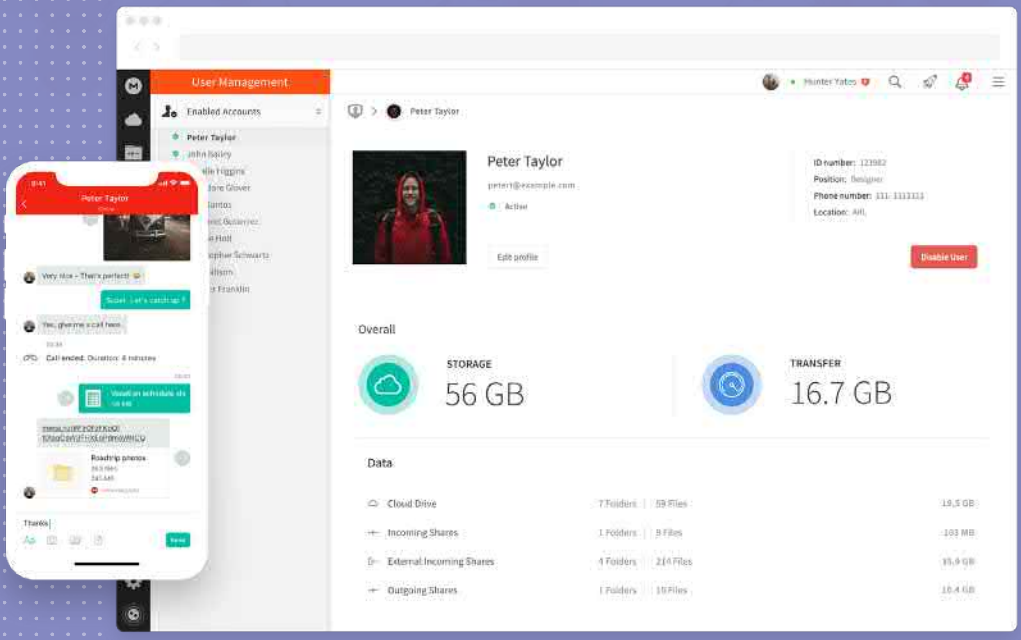
MEGA Storage was founded in 2013, by none other than the infamous Kim Dotcom after his MegaUpload range of servers were shut down due to copyright infringement accusations. Shortly after Dotcom severed ties with MEGA, and the company has moved on to become one of the more respected privacy-based cloud services available.

Despite its founder's notoriety, MEGA doesn't seem to have suffered any bad press since Dotcom split. In fact, it's quite the opposite, thanks to the service's policy of zero-knowledge of what's stored on its servers, heavy encryption, two-factor authentication and utilising the user's password as the root encryption key.

Details are difficult to obtain; however, the company has stated that over 125 million users enjoy the convenience of MEGA's enhanced security, as well as the other benefits and features the cloud storage service offers.

Primary on the list of features is a decent 50GB of free storage available; there are Pro and Business payment plans on offer, but more on them in a minute. MEGA offers speedy file transfers, with plenty of bandwidth for the user to upload large files and folders; there's a Chat function built-in, whereby a user can start a fully end-to-end encrypted chat session with any contacts they've added to MEGA; there's a MEGAbird add-on for Mozilla Thunderbird that enables you to send larger than normal files with full encryption, and there's even a MEGAcmd feature which is a command-line tool that'll allow you to create backups and other administrative scripts.

The list of features doesn't stop there. You're able to preview photos and play videos stored in your user area and there's a form of Versioning available; however, it'll only roll back to one previous version of the file. Unfortunately, that capability does not extend to documents and, like some other cloud storage services that feature better than average encryption, there's no integration with the likes of Microsoft Office, so you'll need to upload office-created documents to the cloud service manually.


User Management
Enabled Accounts
Peter Taylor
John Bailey
Hunter Yates
Peter Taylor
peter1@example.com
Active
Edit profile
ID number: 123982
Position: Designer
Phone number: 111 1111111
Location: AKL
Disable User
Overall
STORAGE
56 GB
TRANSFER
16.7 GB
Data
Cloud Drive
7 Folders
59 Files
19.5 GB
Incoming Shares
1 Folders
9 Files
103 MB
External Incoming Shares
4 Folders
214 Files
15.9 GB
Outgoing Shares
1 Folders
10 Files
10.4 GB
Peter Taylor
Roadtrip photos
Send

ENCRYPTION & SECURITY

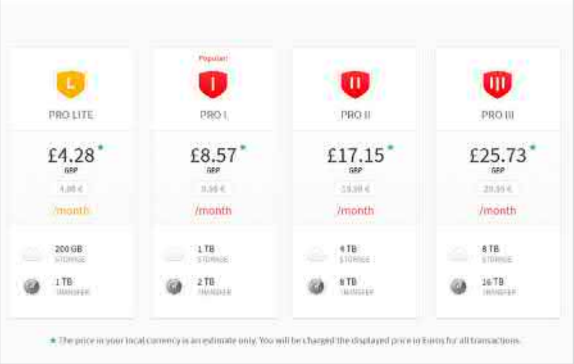
As we've mentioned, heightened levels of security and privacy are chief among the list of features that MEGA offers. As you would expect, from the service founder's point of view, privacy is something MEGA takes very seriously, and admittedly, it does a good job of it too.

Secured with AES 256-bit end-to-end encryption, all throughput between MEGA and its desktop app are private. The contents within your cloud storage area are fully encrypted, and therefore private. The user's password, being the root encryption key, is private - no one at MEGA has access to, or can access, your password (if you lose your password, you've lost your stored data!). The chat function is fully encrypted, and there's the ability to create encrypted shared folders. If a user wishes to share data with another user, he encrypts the required encryption keys with the recipient's public key before transmitting them. Their key fingerprints can be verified through an independent channel to ensure the identity of the recipient. Any change triggers an alarm, eliminating the risk of impersonation through a post-verification man-in-the-middle attack. It may sound like something from a spy movie, but you have to applaud MEGA's use of enhanced privacy.

PRICING

There's up to 50GB available for free, providing you participate in an achievement program, and from there you can opt for varying levels of a Pro account for individuals. These start with Pro Lite at £4.28 per month, Pro I at £8.57/month, Pro II at £17.15/month, and Pro III at £25.73/month. Each Pro level increases the available storage and transfers from 200GB to 8TB.

The Business plan offers a three-user license at Ð10 per user but with unlimited storage and transfers, together with more team sharing features and abilities built-in to the service.

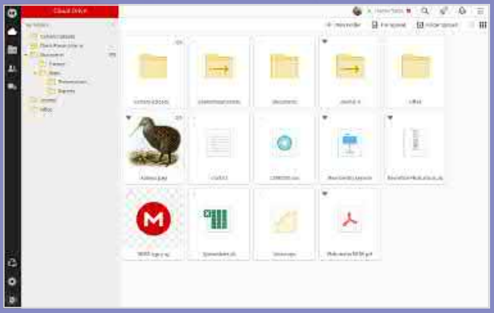


	Popular!		
PRO LITE	PRO I	PRO II	PRO III
£4.28 * GBP [illegible] /month	£8.57 * GBP [illegible] /month	£17.15 * GBP [illegible] /month	£25.73 * GBP [illegible] /month
200 GB STORAGE	1 TB STORAGE	4 TB STORAGE	8 TB STORAGE
1 TB TRANSFER	2 TB TRANSFER	8 TB TRANSFER	16 TB TRANSFER

* The price in your local currency is an estimate only. You will be charged the displayed price in Euros for all transactions.

Conclusion

There's a lot to like about MEGA, but there are also some questionable elements to take into consideration. The first is the association, or rather former association, with Kim Dotcom. If you side with the authorities, then you're less likely to want to sign up to a cloud storage service that was initiated by him for the sake of higher privacy. On the other hand, if you don't really care about Mr Dotcom and whatever he was/is accused of, then you're getting a reasonable deal.



There's also an issue with free storage. According to some sources, the free storage option drops to 15GB after a few months, even if you've participated in the achievement program. Our 50GB was available, but that could be due to us having our account before this became a policy – one to look out for, though.

On the whole, MEGA is a good cloud storage service with excellent levels of encryption and privacy. There are cheaper alternatives but at the cost of lower privacy.

Dropbox

Headquartered in San Francisco, Dropbox was formed back in 2007 by MIT students Drew Houston and Arash Ferdowsi, and has seen many changes in its time. Now valued at well over $10 billion, and with a user base of over 500 million, together with over 600 billion pieces of content uploaded, Dropbox has become one of the top cloud storage services in the world.

There's said to be over 2.2 billion files uploaded to Dropbox daily, which is probably why it's considered as one of the best cloud storage solutions available today. However, it's been something of a rocky road for the company since it was founded all those years ago.

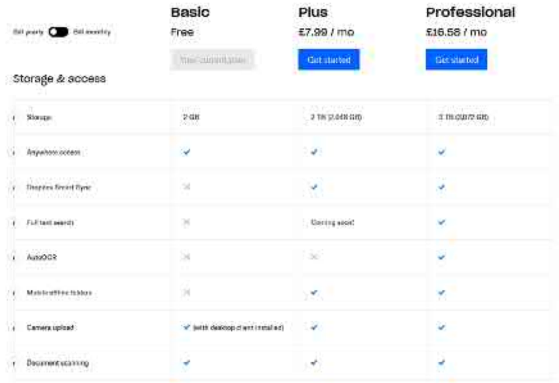
The problems mainly stem from Dropbox's lack of security, which includes several high-level breaches in the past, and the fact that it doesn't employ a zero-knowledge policy. It's not the most privacy-friendly cloud service, it's been blocked in China since 2014, and it's not the cheapest or best cloud service available. So why do so many people use it?

The main draw to using Dropbox is its ease of use. Many of its users feel quite at home with both the web interface, desktop app and even the mobile apps. It integrates well into Microsoft Office, there are extensions available for other office suites, and it has excellent sync options. In short, it works well, and when a product works well on the front line, many users tend to overlook things like privacy and security.

Collaboration is a big hit for Dropbox's business side of the service, and its recent extension of features and abilities has concreted the company's goal of becoming the go-to business cloud storage solution.

The Hobbit - Document
The Hobbit
The Hobbit Walkthrough, ZX Spectrum
Watch later
Share

PRICING



	Basic	Plus	Professional
	Free	£7.99 / mo	£16.58 / mo
Storage & access			
Storage	2 GB	2 TB (2,048 GB)	3 TB (3,072 GB)
Anywhere access	✓	✓	✓
Dropbox Smart Sync	✗	✓	✓
Full text search	✗	Coming soon!	✓
AutoOCR	✗	✗	✓
Mobile offline folders	✗	✓	✓
Camera upload	✓ (with desktop client installed)	✓	✓
Document scanning	✓	✓	✓

Dropbox's prices can vary, but essentially, you get 2GB of free storage, with the ability to upgrade to plus at 2TB for £7.99 per month, and to Professional at 3TB for £16.58 per month. The business options range from Standard at 5TB for £12.50 per month, to Advanced at custom storage for £15.49 per month, and finally Enterprise, which is where you'll need to contact Dropbox for pricing.

It's not the best pricing around, but it's also not too bad either. With these plans, you get encryption, sharing, Paper and other features, and they're gradually increased with each plan as the price increases.

FEATURES

Dropbox underwent a bit of a facelift a year or so ago, dropping some of its older features, and hiding others behind renamed elements or within obscure corners of its service. What you're left with now are some finely-tuned features that present your work in the best light, and allow it to be shared and worked on throughout your teams and colleagues.

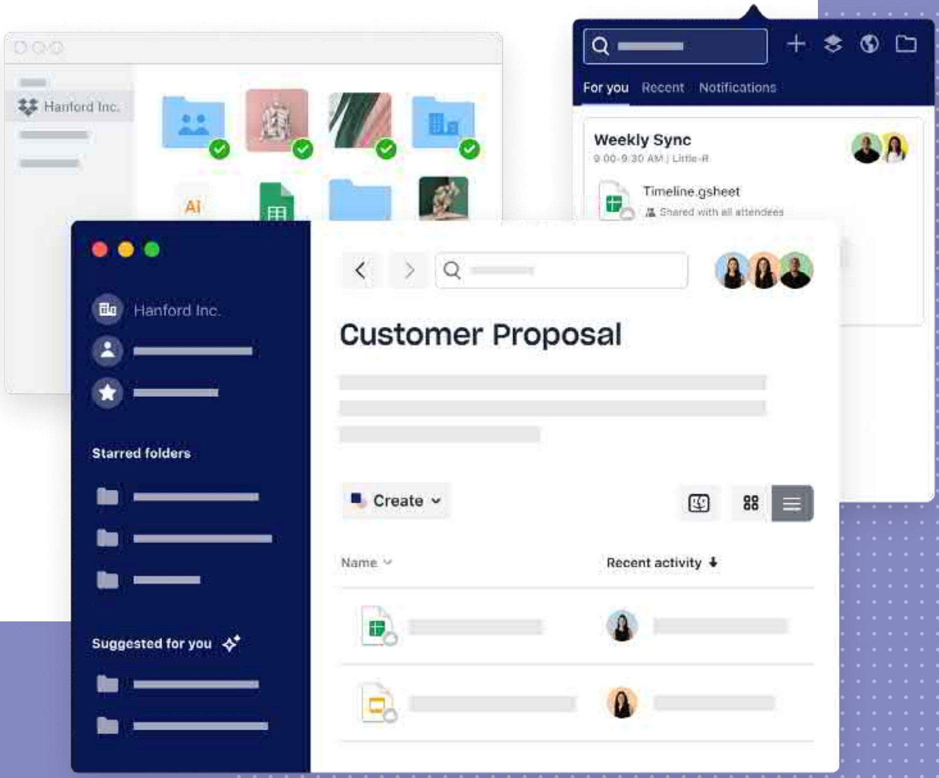
Dropbox Files is the main storage area, where you as an individual and a company will 'drop' all your files and folders. Back in 2017, Dropbox withdrew the ability to drag and drop entire folders from its web interface, which meant you'd have to create a folder on the web interface, then drag and drop the files from your computer into the newly created folder. The other alternative was to use the desktop client. But, due to overwhelming feedback, the company reinstated the feature later in 2018, so now you can drag and drop folders to the web interface, but only one folder at a time.

Dropbox Photos was another feature that was subtly dropped in the big 2018 update and is still sorely missed by users today. The ability to view albums, individual images and pictures and reveal timelines of images was one that we, and many other users, really liked about Dropbox. The service has since been integrated into the Files section but has lost its viewing and timeline elements.

Dropbox Paper is the next biggest feature of the service and one that was present in the past but pushed to the back. Since 2018, Paper has been thrust forward and has become one of the service's best collaboration tools. Paper is a lightweight, cloud-based collaboration space, a flexible workspace for teams to create, review and manage documents and ideas. A kind of shared word processor, where you can create meeting notes and project templates. It works exceedingly well and is one of the most used features of the entire service.

Transfer is a feature that allows you to send large files that don't require any collaboration. For example, if you have a file too large for email to send to a remote colleague, you can upload it to Transfer, set an expiry date, then copy the generated link to email to the colleague. The colleague can then quickly gain access to the Transfer service and download the file themselves. After the specified time, the file is deleted.

The last feature is Showcase, where you can share your work with partners and clients on a single page. You can guide people through your content, add your own branding, and automatically keep track of who views, downloads, and comments.

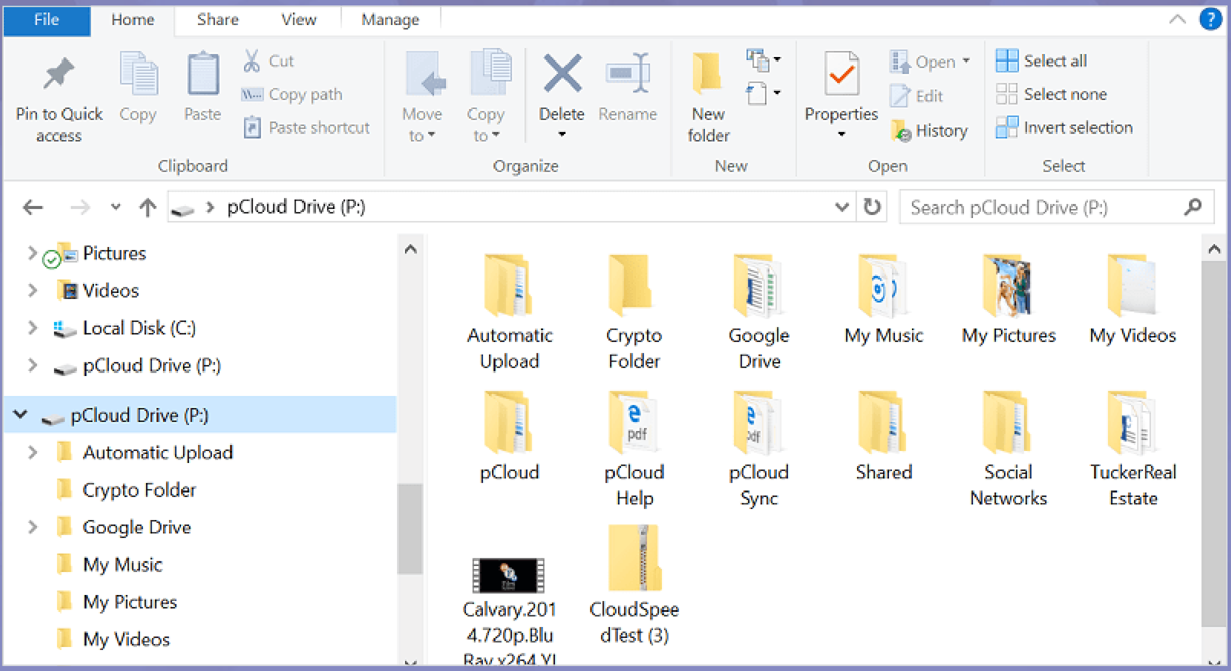


Conclusion

Despite the drawbacks of Dropbox, it's really one of the best services you can get. Team collaborations are excellent, the clients (both on the desktop and mobile) are well designed and easy to use – there's also a new client coming in early 2020 – and the feature list is impressive too. True, the free option could do with a few more GB to lure in the individual, but on the whole, it's a superb cloud storage service.

pCloud

Founded in 2013 this Swiss-based cloud service has fast become one of the most highly rated in the market. It's easy to use, has a large, initial, free storage capacity, and some great multimedia features alongside excellent security.


File
Home
Share
View
Manage
Pin to Quick access
Copy
Paste
Cut
Copy path
Paste shortcut
Clipboard
Move to
Copy to
Delete
Rename
Organize
New folder
New
Properties
Open
Edit
History
Open
Select all
Select none
Invert selection
Select
pCloud Drive (P:)
Search pCloud Drive (P:)
Pictures
Videos
Local Disk (C:)
pCloud Drive (P:)
pCloud Drive (P:)
Automatic Upload
Crypto Folder
Google Drive
My Music
My Pictures
My Videos
Automatic Upload
Crypto Folder
Google Drive
My Music
My Pictures
My Videos
pCloud
pCloud Help
pCloud Sync
Shared
Social Networks
TuckerReal Estate
Calvary.2014.720p.BluRay.x264.YI
CloudSpeedTest (3)

According to pCloud, over 10 million users have switched to them from their former cloud services. People who work at the likes of Instagram, Twitter, Nike, LinkedIn, and many more big names use the company; and it's quite easy to see why.

pCloud is designed for ease of use. Its web interface looks similar to that of Windows Explorer, and it's incredibly quick to browse around as well as upload and download. Otherwise, it offers an enhanced backup and storage area for you to drop your files and folders with unlimited file sizes and unlimited upload and download bandwidth.

In addition, there's also the pCloud Drive software that's available for Windows, macOS, Linux, iOS, Android and as an add-on for Firefox – and even a Lightroom Plug-in. pCloud Drive works in much the same way as the Dropbox client; it creates a virtual area within the system's file manager and acts as a type of network drive to keep everything in sync with the cloud area.

There's a lot of other good features too, such as file versioning that'll keep your file history for up to 15-days in the free model, and 30-days in the paid subscription models; with the option to extend file versioning to 365-days. File sharing is available for individual files and folders, and you're able to manage the shares you've created from the desktop client, or from mobile devices.

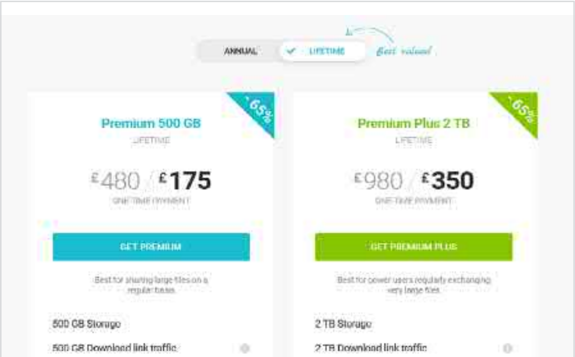
Security is handled via TLS/SSL encryption both to and from you and the pCloud servers. Plus, the content you upload to pCloud is stored on at least three, separate server locations to provide geo-redundancy. The only downside to security is

PRICING

pCloud's pricing is very reasonable and offers something we don't often see from a cloud service provider. You get 10GB of storage available for free when you sign up, but you can upgrade that to the Premium 500GB plan for £3.99 per month. Alternatively, there's a Premium Plus plan available for £7.99 per month that offers 2TB of storage.

But hold on, pCloud also offer a Lifetime plan with a saving of 65% across both of the subscription models. For a £175 one-time payment, you can have 500GB of storage, and for a £350 one-time payment, you can have the 2TB plan. There's also a pCloud Family option, that'll give up to five users access to the 2TB storage for a one-off payment of £500. Finally, there's a business plan, but you'll need to contact the pCloud sales division to chat about your requirements and payment.

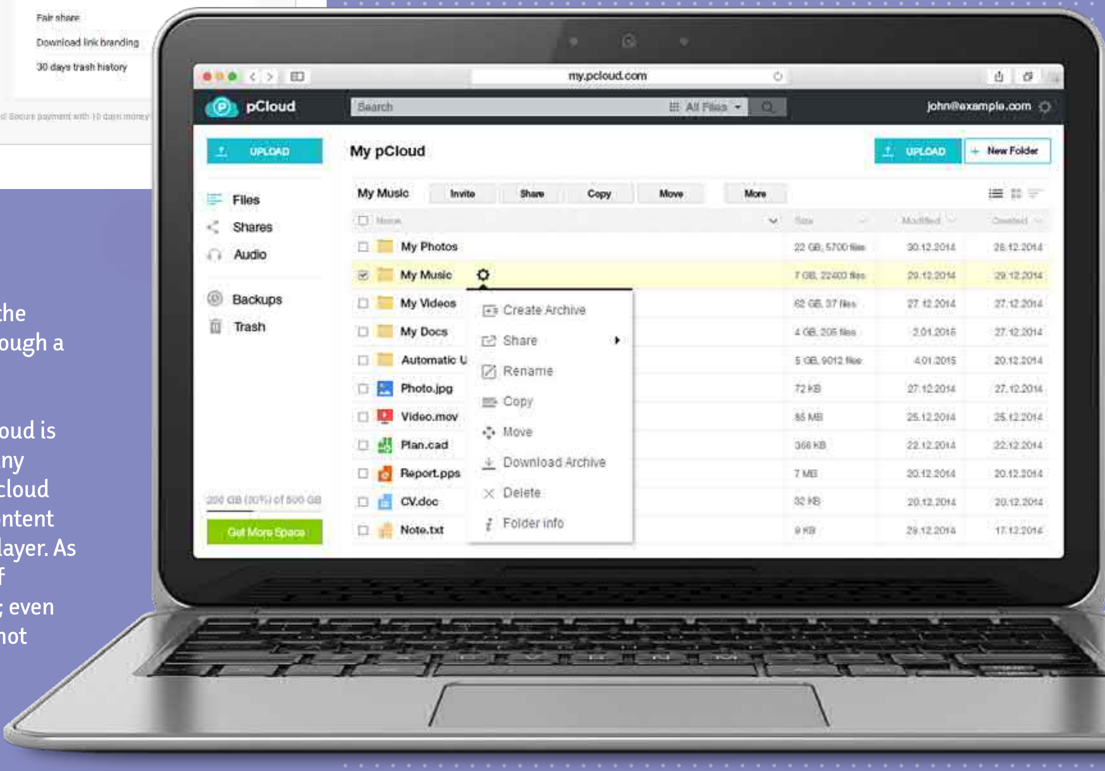
With regards to the pCloud Crypto added extra; you're looking at a monthly fee of £4.99, or a lifetime on-off payment of £125.


ANNUAL
✓ LIFETIME
Best valued
-65%
GET PREMIUM
GET PREMIUM PLUS

Premium 500 GB	Premium Plus 2 TB
LIFETIME	LIFETIME
£480 / £175	£980 / £350
ONE-TIME PAYMENT	ONE-TIME PAYMENT
500 GB Storage	2 TB Storage
500 GB Download link traffic	2 TB Download link traffic
Fair share	Fair share
Download link branding	Download link branding
30 days trash history	30 days trash history

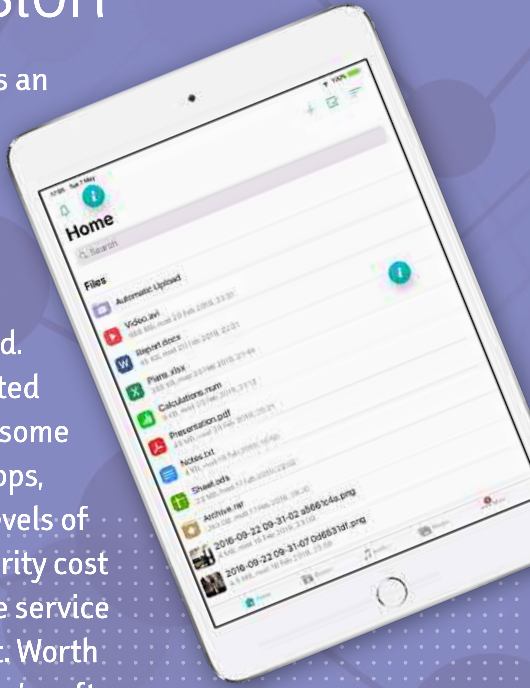
that you're required to pay for the higher-levels of encryption through a service called pCloud Crypto.

The multimedia element of pCloud is excellent, though. If you have any music or videos stored in your cloud area, you're able to playback content through the service's built-in player. As far as we can tell, it's capable of handling most media file types; even H.265 encoded files. However, not all media files are created equally, so it's best to test the file before committing to anything.


my.pcloud.com
pCloud
Search
All Files
john@example.com
UPLOAD
Files
Shares
Audio
Backups
Trash
Get More Space
My pCloud
UPLOAD
New Folder
My Music
Invite
Share
Copy
Move
More
Create Archive
Share
Rename
Copy
Move
Download Archive
Delete
Folder info

Name	Size	Modified	Created
☐ My Photos	22 GB, 5700 files	30.12.2014	28.12.2014
☑ My Music	7 GB, 22400 files	29.12.2014	29.12.2014
☐ My Videos	62 GB, 37 files	27.12.2014	27.12.2014
☐ My Docs	4 GB, 205 files	2.01.2015	27.12.2014
☐ Automatic U	5 GB, 9012 files	4.01.2015	20.12.2014
☐ Photo.jpg	72 KB	27.12.2014	27.12.2014
☐ Video.mov	85 MB	25.12.2014	25.12.2014
☐ Plan.cad	366 KB	22.12.2014	22.12.2014
☐ Report.pps	7 MB	20.12.2014	20.12.2014
☐ CV.doc	32 KB	20.12.2014	20.12.2014
☐ Note.txt	9 KB	29.12.2014	17.12.2014

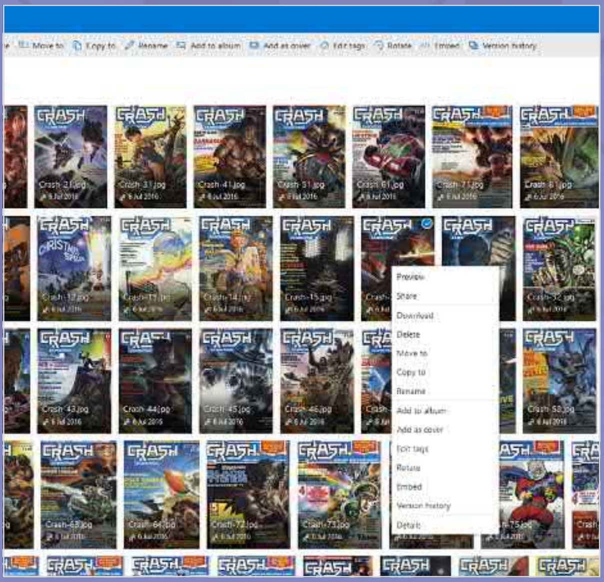
Conclusion



Overall, pCloud is an excellent service that offers some unique features and is reasonably priced. True, there's limited integration with some of the popular apps, and the added levels of privacy and security cost you more, but the service itself is excellent. Worth considering if you're after something a little different or for some free 10GB of storage as another backup location.

OneDrive

Microsoft's OneDrive started life as Windows Live Folders back in 2007 but was renamed shortly after to Windows Live SkyDrive. The service has seen many facelifts over the following years, adding new features and integrating itself seamlessly with Office while improving its overall UI.



The SkyDrive name was dropped in 2014 due to a lawsuit involving BskyB, for using the word Sky. The high court ruled that Microsoft had breached BskyB's trademark, and as such, the Redmond Company redesigned its cloud service together with a new name: OneDrive.

Initially, Microsoft offered its free users 10GB of storage, increasing it to as much as 25GB in 2008, but when it was redesigned in 2015, the amount dropped to 5GB of storage for free use. In addition, a number of other plans were also changed as the service began to incorporate the entire Office 365 suite of apps and services.

Despite the drop in storage, OneDrive has matured to become possibly the best cloud storage service available. There are plenty of features associated with OneDrive on its own, but when you factor in Office 365, you get one of the most comprehensive cloud solutions we've ever seen.

The web interface is easy to use and fast to respond. Uploading content, files and folders is seamless, and navigating through the files once you've uploaded them is much like browsing through Windows Explorer. The Photos section lets you browse all the images in your cloud area, detailing them as a timeline by default but with the option to view as Albums; you can even view the images and photos as Tags, which uses AI to separate each image into sections like people, buildings, food, technology, animals and so on.

Sharing is a simple process of right-clicking a file or folder and selecting the Share option. From there, you simply add the email address of the recipient and OneDrive will send them an email with the link provided. Managing access to the share is also easy, so you can collaborate more effectively with individuals and teams.

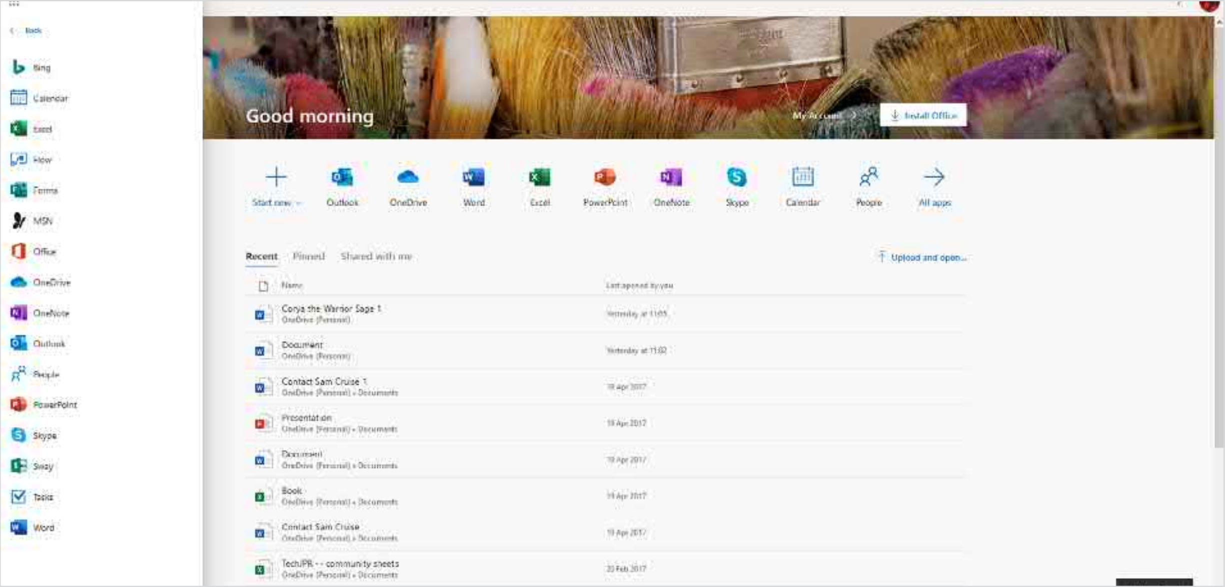
Thanks to the integration with Office 365, you're able to right-click anywhere within the OneDrive area and create new Microsoft Office content including: Word, Excel, PowerPoint, OneNote, and even Forms and plain text documents. Picking one of the Office apps will open an online version of the software, which will automatically save to OneDrive, so you don't even need to have Office installed on your machine.

A new feature to OneDrive is the Personal Vault, a highly encrypted and privacy protected area of OneDrive where you're able to store personal documents. There's two-factor authentication in place here, alongside other security processes, and for free users, you're able to store a maximum of three files - whereas that number is unlimited for subscription users.

PRICING

As stated, you get 5GB free storage only initially. That can be upgraded to 100GB for £1.99 per month, but you won't get an Office 365 license with those options. On the flip side, you do get access to Office for the web, which means you'll still be able to use Word, Excel and so on from within OneDrive and from office.com – and it's worth noting that the online versions of Word etc. are only missing a few features over their installed counterparts.

For £59.99 per year, you get Office 365 Personal, which gives you 1TB of storage on OneDrive, plus a licence for Office 365 for Windows or macOS, as well as improved features beyond the free option. Moving up, for £79.99 per year there's Office 365 Home, which allows up to six users to install and use Office 365 while also giving them 1TB of storage in OneDrive each.


Back
Bing
Calendar
Excel
Flow
Forms
MSN
Office
OneDrive
OneNote
Outlook
People
PowerPoint
Skype
Sway
Tasks
Word
Good morning
My Account
Install Office
Start new
Outlook
OneDrive
Word
Excel
PowerPoint
OneNote
Skype
Calendar
People
All apps
Recent
Pinned
Shared with me
Upload and open...

Name	Last opened by you
Conya the Warrior Saga 1 OneDrive (Personal)	Yesterday at 11:05
Document OneDrive (Personal)	Yesterday at 11:02
Contact Sam Cruise 1 OneDrive (Personal) › Documents	19 Apr 2017
Presentation OneDrive (Personal) › Documents	19 Apr 2017
Document OneDrive (Personal) › Documents	19 Apr 2017
Book OneDrive (Personal) › Documents	19 Apr 2017
Contact Sam Cruise OneDrive (Personal) › Documents	19 Apr 2017
TechJPR -- community sheets OneDrive (Personal) › Documents	23 Feb 2017

CRASH
Share 'Crash-2'
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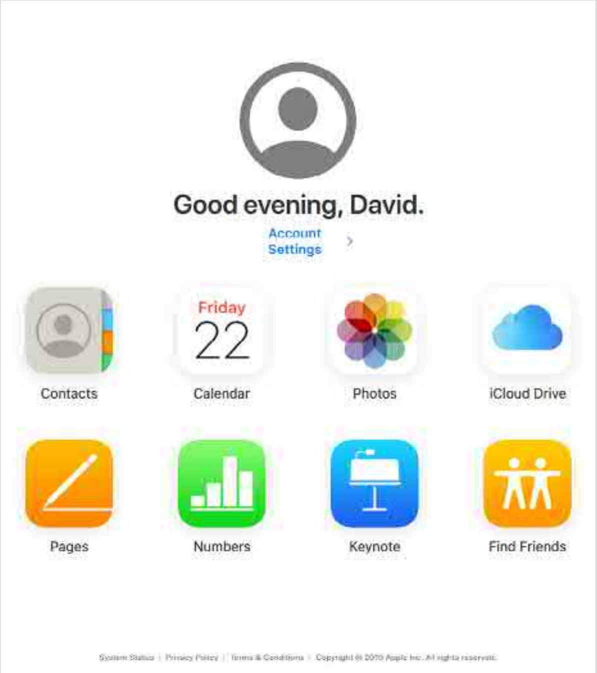
Conclusion

Microsoft gets a lot of bad press, some of which is unnecessary, but also to be expected since it's the most used operating system and service in the world. Whatever you may think about the Redmond Company, or of its actions in the past, you must admit that the OneDrive service is excellent.

It would be good to have slightly more free storage available, that may entice more users to the service and ultimately opt for the subscription plans, but on the whole, we think OneDrive is the best cloud storage service you can get.

iCloud

Apple's iCloud was launched in October 2011 as the successor to the company's previous subscription-based service, MobileMe. Thanks to Apple's inspirational idea of integrating iCloud into the entire Apple operating system line of products, the service was boasting a user base of over 20 million after just one week of becoming live.



You've got to hand it to Apple, when it does something innovative, it works like a charm and becomes the benchmark for other companies to try and attain. iCloud is one of technology's greatest success stories, and it's not difficult to see why. After all, if you're already producing an operating system that runs on some of the world's most expensive computers, why not seamlessly incorporate a cloud service that quickly becomes a necessity.

The big step for iCloud came when Apple made it available to use via an iTunes update, which quickly led to tens of millions of users within days of the launch. As a consequence, alongside the continuing rise of fortunes for Apple, the company was able to pour vast amounts of money and resources into the service, making it one of the most comprehensive in the world.

The service has seen several important updates over the years and has since settled on a look that, like much of Apple's world, greatly resembles iOS. Another good move by Apple, keep everything looking more or less the same and the userbase won't get confused when they see something different.

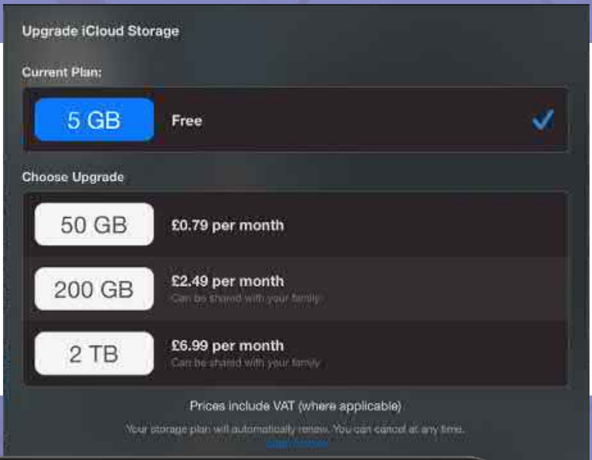
Naturally, the main feature of iCloud is storage. Users are offered 5GB of free storage, and you can upload via the web interface or through the iCloud Drive folder on your Apple device. However, the power of iCloud doesn't end with storage; the service has many other features built-in, such as Find my Mac or find my iPhone. iCloud Photos allows you to instantly upload and sync from your iPhone, Mac and other i-Devices, and you can share any file or folder within iCloud by right-clicking and selecting Share, where you can opt to send a link via email, message and so on. Messages are synced over iCloud and you can share and back up all your information, bookmarks and history from Safari to iCloud.

Non-Apple users could be forgiven for thinking that iCloud is only available for Apple devices, however, the Cupertino Company realised a version of iCloud for Windows in mid-2019, which is now available from the Windows 10 Store.

PRICING

iCloud doesn't offer much in the way of services beyond storage, such as with OneDrive offering Office 365 with increasing subscription models. However, Apple's iCloud payment plans are very reasonable.

There's 5GB of space on iCloud for free, beyond that expect to pay 79p per month for 50GB, then £2.49 per month for 200GB, and finally £6.99 per month for 2TB of storage.



Upgrade iCloud Storage

Current Plan:

5 GB	Free ✓

Choose Upgrade

50 GB	£0.79 per month
200 GB	£2.49 per month Can be shared with your family
2 TB	£6.99 per month Can be shared with your family

Prices include VAT (where applicable)

Your storage plan will automatically renew. You can cancel at any time.

Browse
Aug 25
Goa, India
You Gotta Hear
MacBook Pro

Conclusion

Whereas OneDrive still feels like a separate entity, despite being integrated into Office 365, Apple's iCloud has become one of the most important features of the company's line of operating systems. It's as much a part of the core Apple OS as the file manager.

iCloud is, without doubt, one of the finest cloud storage services available. It may appear to alienate non-Apple users, but that's only the perception of those who don't use it regularly or have bothered to access the free service. To Apple users, though, it's cloud storage at its finest.

Amazon Drive

Amazon's cloud services are the stuff of legend in the technology world. Acres of humming servers, petabytes of potential storage, and teraflops of computing power that's within the top 50 fastest supercomputers in the world, is an IT enthusiast's dream come true. However, beyond all that, the company offers a more personal approach to cloud storage: Amazon Drive.

Amazon Drive launched in 2011 and since then has undergone a huge amount of changes, both in its user interface and the number of features on offer. The changes Amazon has implemented haven't always gone down too well with the users. Confusion over what's available and what's not, what can only be done with the Prime account and what can't, and whether it's a photo storing service or not, are chief among the concerns raised by a few of the millions of users.

The problems stem from the company dropping or reinstating features across different countries. For example, China and Brazil have different Amazon Drive features to the rest of the world, and the pricing model seems a bit random too, with UK customers paying more for the same subscription service than U.S. customers. It just seems a little fragmented.

The initial, free account offers you 5GB of storage; that seems to be the case for most of the world (but we could be wrong). You get a simple, drag and drop web interface, a downloadable client confusingly called Amazon Photos, the ability to share files, a recycle bin and an Amazon Photos area for displaying your images in various styles.

Transfers to and from the web interface are quick; better than Dropbox but slower than OneDrive or iCloud. The storage area is split into three folders by default: Documents, Pictures and Videos. Click on one of the folders to view its contents, and you can synchronise with the client, or view the content via the website. Simple and effective.

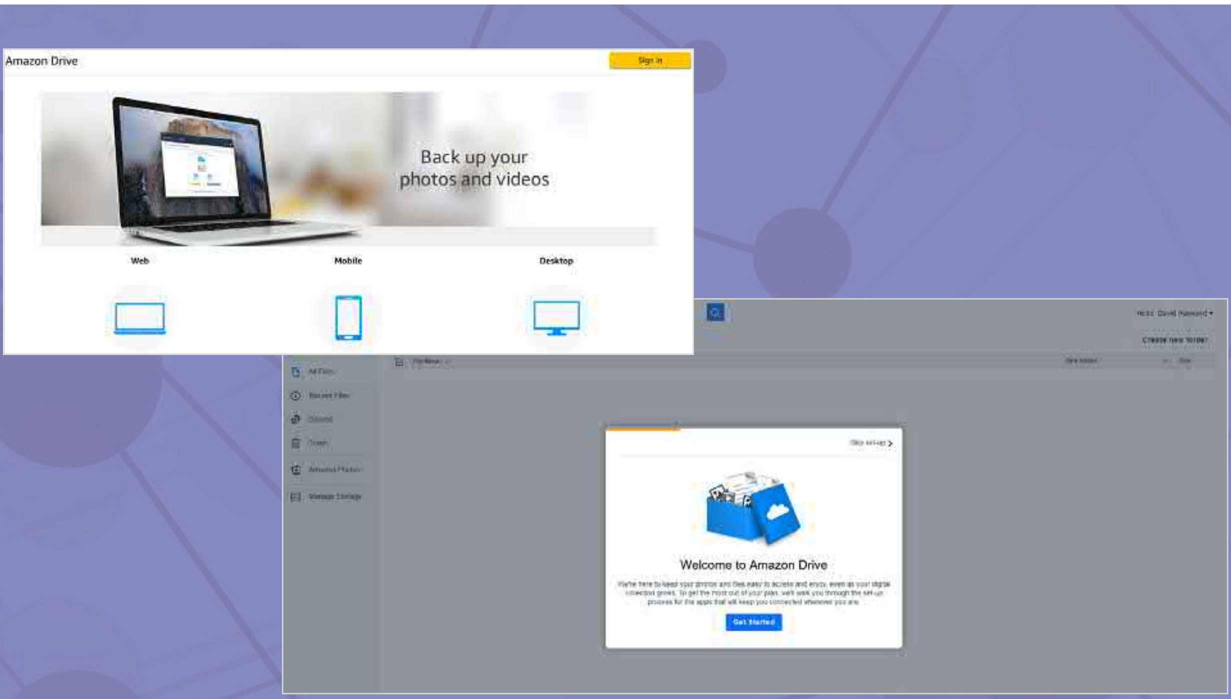
Sharing can be done by individual file, groups of files, or entire folders. It's a case of highlighting the files/folders in question and clicking the Share button at the top of the screen. From there, you can generate a link, email the recipient, or share it through Facebook or Twitter.

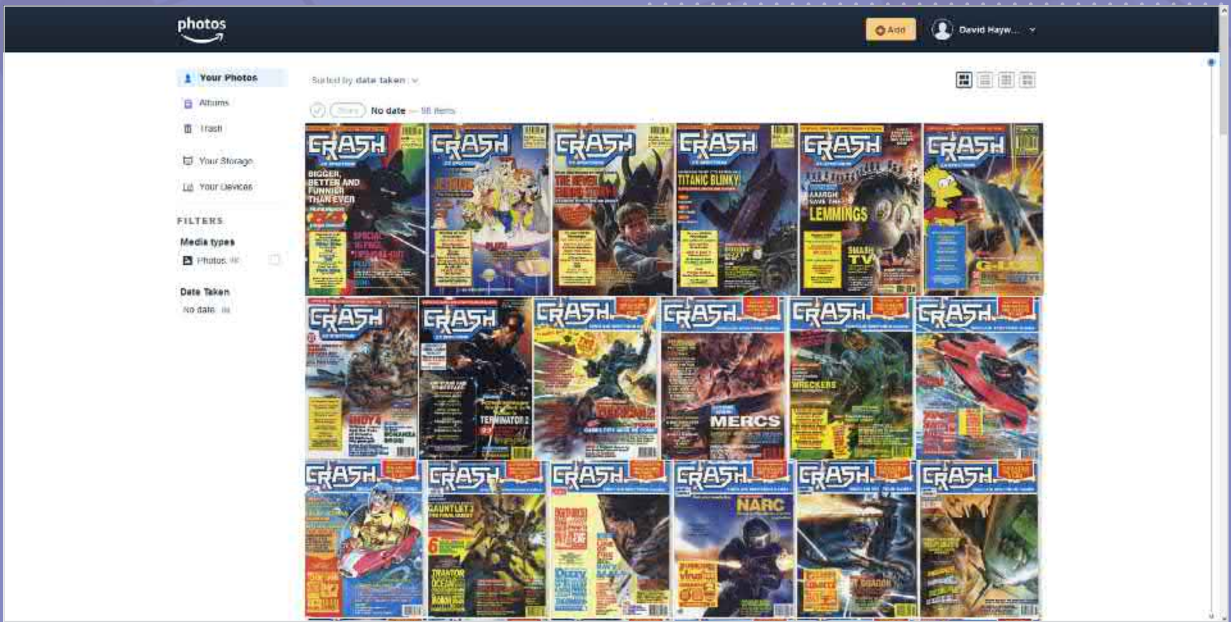
You can view your current storage use, and the devices you've set up to access Amazon Drive. Beyond that, there's not much else to add concerning the main storage area. The Amazon Photos section is a confusing element, though.

Amazon Photos, as listed in the web interface, appears as a separate entity to the other storage features, making you think that it somehow has a different set of options; it doesn't. Clicking on Amazon Photos opens a separate storage area, with no way back to the original other than the back button on the browser. In here are all the images you've uploaded to your area as a gallery. By clicking through four different options, they can be viewed in different styles: a collage-type view, small thumbnails, slightly bigger thumbnails, and even bigger thumbnails. You can highlight the images, look at them through a slideshow and share them, and that's it. There's nothing else. It seems like Amazon had plans for the Photos area, but never bothered to implement them.

PRICING

The pricing structure for Amazon Drive is quite good, but a little odd at the same time. Beyond the free 5GB per Amazon user, you can buy 100GB for £16.99 per year, and 1TB for £79.99 per year. But anything more will cost you an additional £79.99 per terabyte, so 2TB of storage will set you back £159.98, and if you wanted 30TB, then you're looking at £2399.70 per year.


Amazon Drive
Sign in
Back up your photos and videos
Web
Mobile
Desktop
Welcome to Amazon Drive
Get Started


photos
Add
David Hayw...
Your Photos
Albums
Trash
Your Storage
Your Devices
FILTERS
Media types
Photos
Date Taken
No date
Sorted by date taken
No date

Conclusion

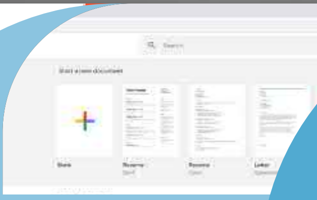
While the 5GB is the average, free storage across most cloud services, and the fact that a lot of people are already Amazon users (and probably don't realise they've got 5GB of cloud storage available), there's something about Amazon Drive that doesn't feel complete.

Sure, the service works. You can drag and drop files and folders, store them and share them, but it's not as complete a service as most of the others we've come across.

46

What are Google's Cloud Apps

Discover what Google has to offer the consumer with its Cloud services.



51

How to Use Docs

Google's Cloud services are impressive and extremely useful. Learn how to get the best from them.

53

How to Use Google Photos

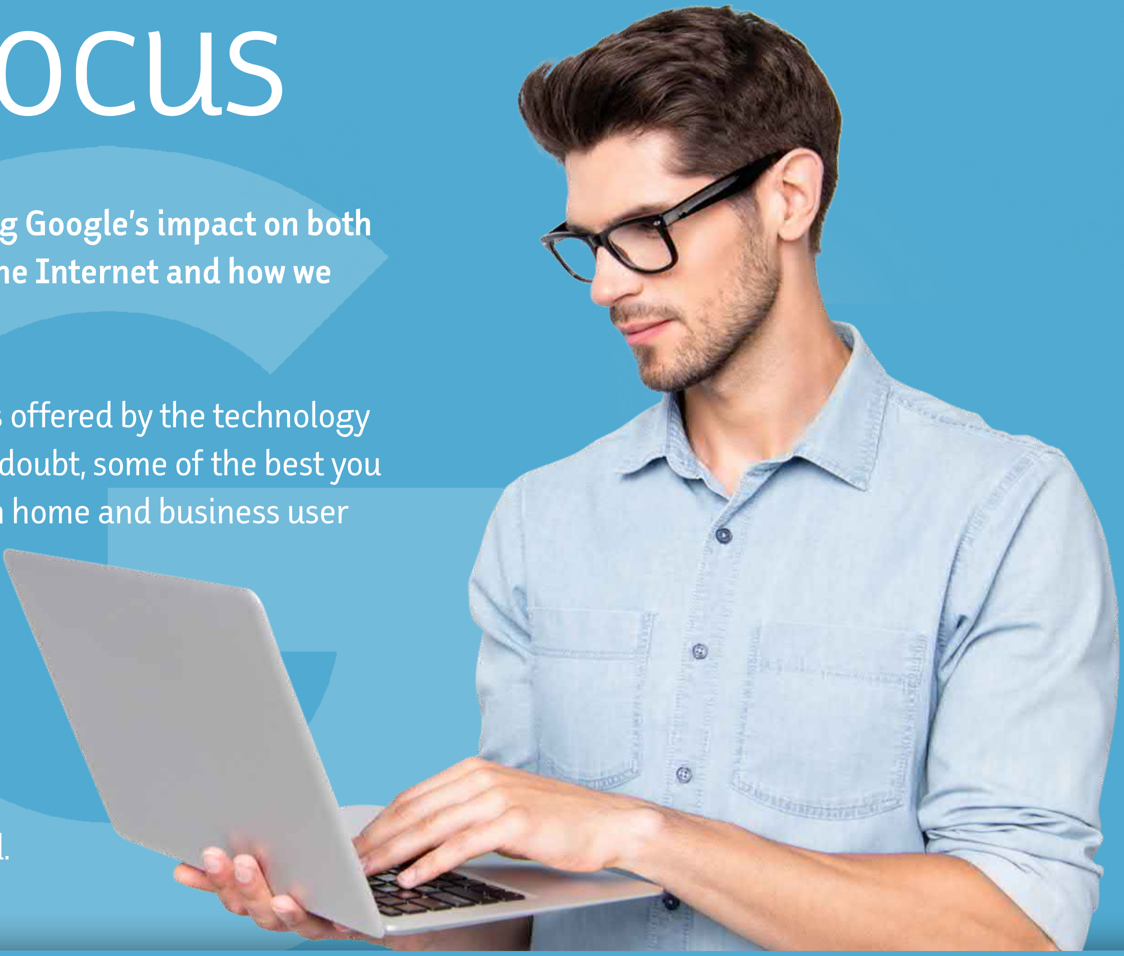
Learn how to get the best from Google's Photo Cloud service.

Google Cloud – In Focus

There's no denying Google's impact on both the evolution of the Internet and how we work online.

The cloud services offered by the technology giant are, without doubt, some of the best you can use; from both home and business user points of view.

Here's a look at what the mighty Google has to offer, and how it can be used.



46 Google's Cloud Apps
48 Google Drive
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50 Calendar
51 Docs
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53 Photos
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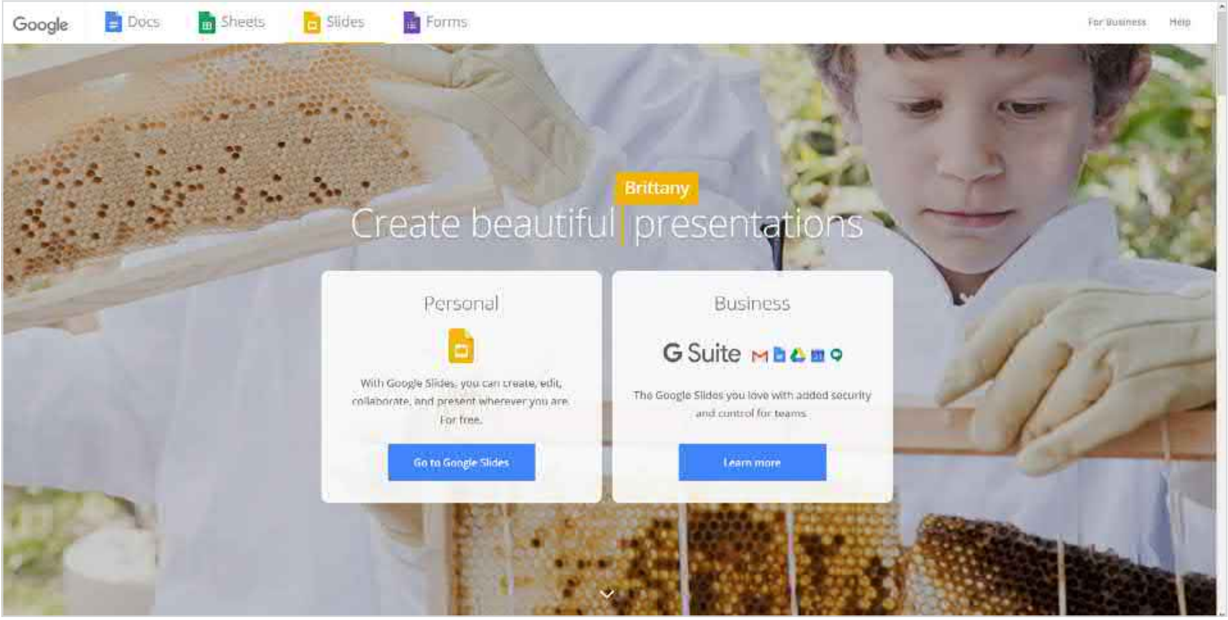
56 How to Use Gmail
58 Cloud Technologies: The Environment

Google's Cloud Apps

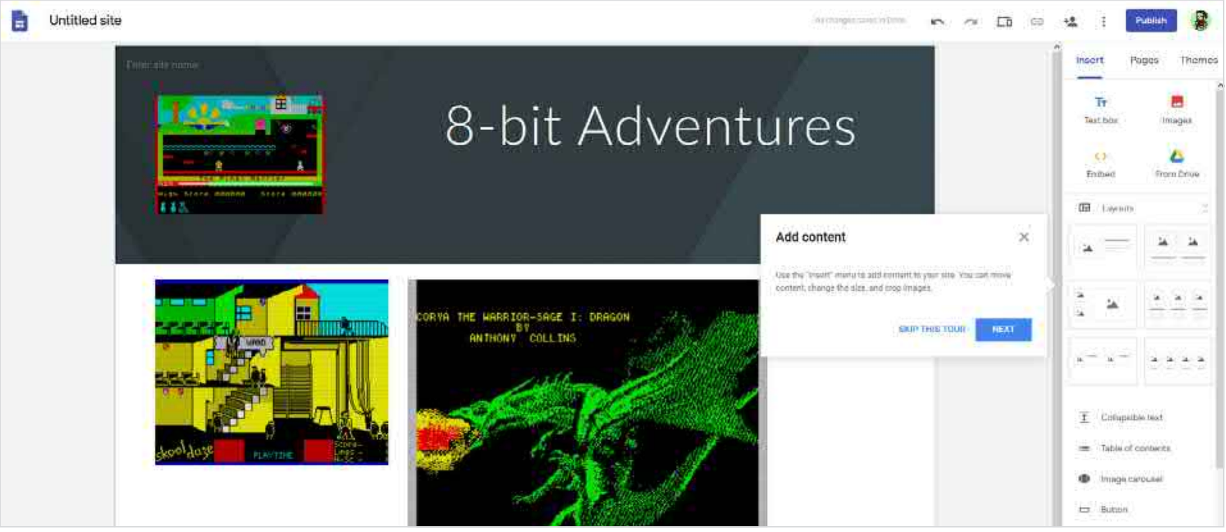
Google has invested billions into building and delivering a range of cloud-based services and apps for the home and office. Email, document editing, spreadsheet creation, website building, storage and collaborations are all covered with an easy to use and familiar interface.

Google is famous, or rather infamous, for pumping millions into the next big project only to drop it after a few years, or even less in some circumstances. Take Google+ for example, a service that was to be Google's answer to Facebook. While good, it never really enjoyed the kind of virtual footfall that Facebook ever did, and as such Google closed it down mid-2019. Imagine if you'd invested time and effort to create a personal, or work-based Google+ page only to have the rug pulled out from under you?


Google
Docs
Sheets
Slides
Forms
For Business
Help
Brittany
Create beautiful presentations
Personal
Business
G Suite
Go to Google Slides
Learn more

With Google Slides, you can create, edit, collaborate, and present wherever you are. For free.

The Google Slides you love with added security and control for teams.


Untitled site
Publish
8-bit Adventures
Add content
SKIP THIS TOUR
NEXT
Insert
Pages
Themes
Text box
Images
Embed
From Drive
Layouts
Collapsible text
Table of contents
Image carousel
Button

Use the "Insert" menu to add content to your site. You can move content, change the size, and crop images.

GMAIL

Gmail is one of the most popular web-based, cloud email solutions available today. With everything from custom themes to cross-platform compatibility, it's little wonder that there are over one billion active Gmail accounts.

DRIVE

Google Drive is the company's mass cloud storage solution. With 15GB of free storage available and solutions for up to 30TB, for a considerable monthly fee, Drive is considered one of the better SAAS for both home and SMB use.

DOCS

With Google Docs, you're able to write, edit and collaborate with anyone. This cloud app is accessible from any connected device, and the documents can be saved as Microsoft Word, Rich Text, Plain Text, ePub, or even as a web page.

SHEETS

Together with the ability to create documents, Google has offered us the capacity to create, edit and collaborate with online spreadsheets. Sheets works very much the same as Docs, in that it's a cloud-based app available from any online device that allows you to save in the, popular, office formats.

SLIDES

As you can well imagine, Slides completes the more popular office-based productivity apps with an online presentation cloud app. There are numerous templates available, and, as before, you can save the presentation in a variety of different formats.

CALENDAR

Google Calendar is a feature-rich, cloud-based app that allows you to add events and share them with your friends, family, or co-workers. You can import pre-defined calendar templates, international holidays and celebrations, create email-based agendas and much more.

SITES

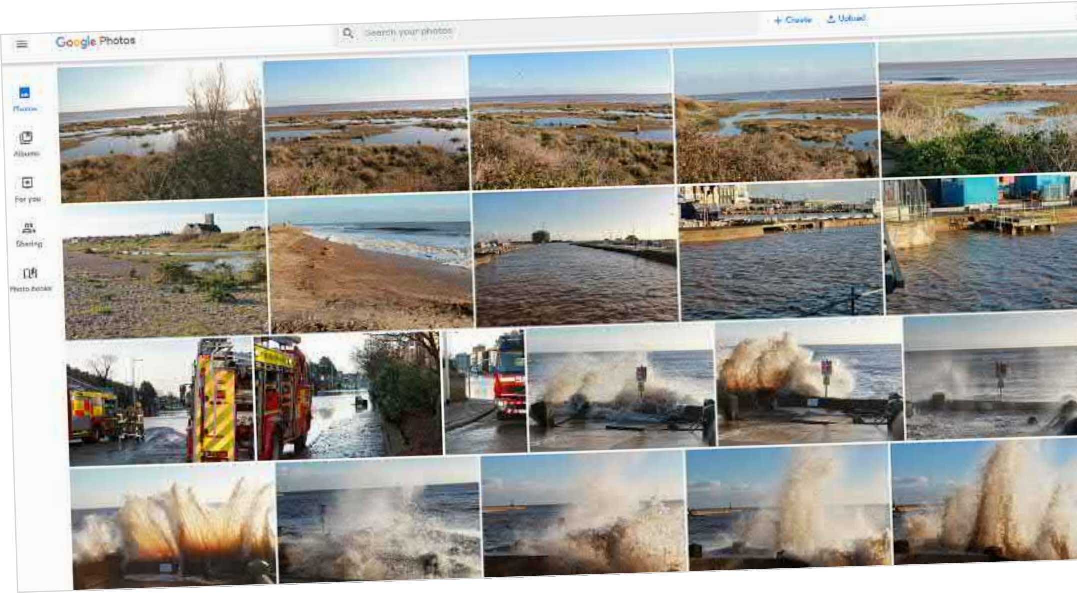
Although not quite as popular as it once was, Google Sites has seen an upgrade in recent years to bring it in line with the other Google cloud apps. The web page creation app is now far easier to use and manage, and the integration of other Google apps is simplified.

HANGOUTS

Described as a unified, cloud-based communications service, Google Hangouts is where you can participate in text, voice, or video chats with other individuals or groups. It's built into both Gmail and Google+ and is also available in mobile versions.

PHOTOS

Google Photos is a photo and video sharing cloud service that launched mid-2015. With it, you can auto-backup all your images from your Google account enabled devices, as well as edit and share your content.

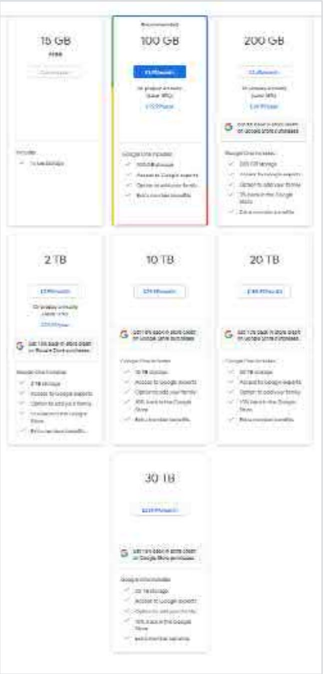


Google Drive

There's no shortage of features to Google Drive, and the company actively adds more frequently enough to keep the service alive and well. It's not all about the amount of storage we have available, sometimes it's the features that lure us to one cloud storage service or another.

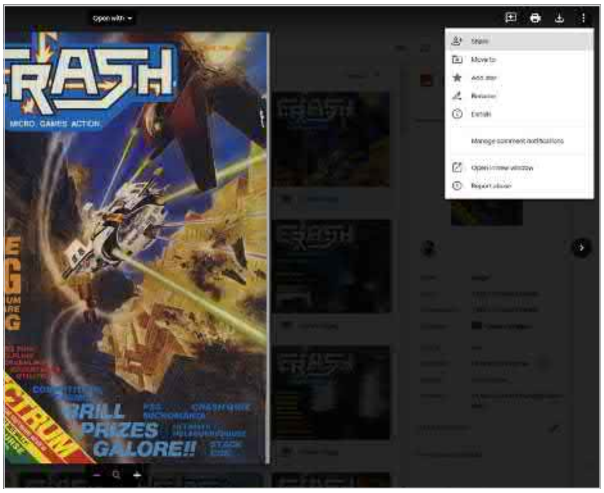
STORAGE

15GB of free space is very good, even by today's high volume standards. If you need more though, then you can upgrade to 100GB for just £1.59 per month or 2TB of storage for a mere £7.99 per month. For the SMB user, you can even go up to 30TB for £239.99 per month.



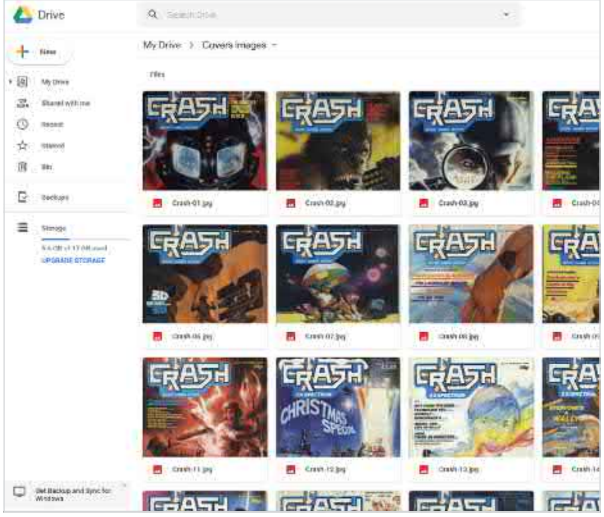
COLLABORATION

Collaboration is one of them most important aspects, and features, of the modern cloud storage service. Google Drive's contents are private until you opt to share them either individually, or as a group. You can even create a publicly accessed share for your Drive contents.



FILE TYPES

You can upload any kind of file type into Google Drive, be it a Microsoft Office created file, PDF, image, video or audio. You can even view the contents of Adobe and Microsoft-based file types, as well as archive and text files, from within Drive.



SECURITY

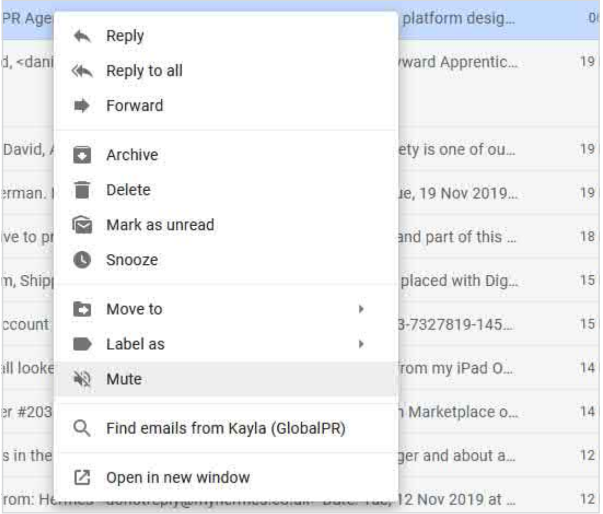
Security is always at the forefront of most user's minds when it comes to cloud computing. Google Drive is, thankfully, a pretty secure service. It uses a military standard 256-bit AES encryption cipher, and a two-step verification process that can interact with your phone's security.

Gmail

Gmail is one of the best webmail services available for the home and business user. While it may lack some of the advanced features that an in-house email server can offer, there's still a lot you can do with Gmail's easy to use interface.

GROUPS

Group emails are great, but they can become a distraction when you're trying to work. Clicking on the More button in a group-wide email and selecting Mute will let you get the message conversations but without the notifications.


Reply
Reply to all
Forward
Archive
Delete
Mark as unread
Snooze
Move to
Label as
Mute
Find emails from Kayla (GlobalPR)
Open in new window
PR Age
platform desig...
d, <dani
ward Apprentic...
David, A
ety is one of ou...
erman. I
ie, 19 Nov 2019...
ve to pr
and part of this ...
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Marketplace o...
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ger and about a...
rom: He
12 Nov 2019 at ...
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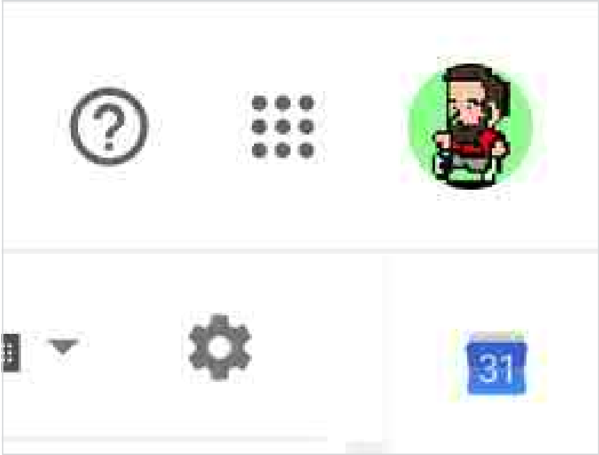
12
12

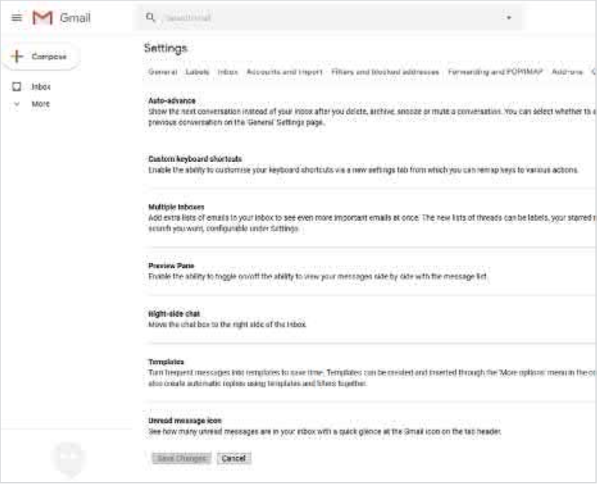
ACCOUNTS

You can easily switch between multiple Gmail accounts by clicking on your profile image in the top-right corner of the Gmail interface. However, you can also quick change by entering a number into the Gmail address. For example: https://mail.google.com/mail/u/0/#inbox, for one account, https://mail.google.com/mail/u/1/#inbox, for another, and so on.



SETTINGS

Gmail Labs were once one of the best elements to the company's email service, but they've been replaced with the Advanced tab now. Click on Settings and then the Advanced tab. In here are numerous features, such as Preview Pane and Custom Shortcuts.


Gmail
Compose
Inbox
More
Settings
General
Labels
Inbox
Accounts and Import
Filters and blocked addresses
Forwarding and POP/IMAP
Add-ons
Save Changes
Cancel

Auto-advance
Show the next conversation instead of your inbox after you delete, archive, snooze or mute a conversation. You can select whether to
previous conversation on the 'General' Settings page.

Custom keyboard shortcuts
Enable the ability to customise your keyboard shortcuts via a new settings tab from which you can remap keys to various actions.

Multiple Inboxes
Add extra lists of emails to your inbox to see even more important emails at once. The new lists of threads can be labels, your starred
search you want, configurable under Settings.

Preview Pane
Enable the ability to toggle on/off the ability to view your messages side by side with the message list.

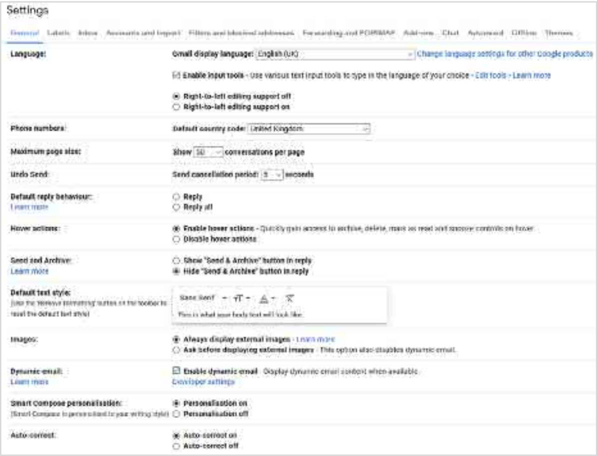
Right-side chat
Move the chat box to the right side of the inbox.

Templates
Turn frequent messages into templates to save time. Templates can be created and inserted through the 'More options' menu in the co
also create automatic replies using templates and filters together.

Unread message icon
See how many unread messages are in your inbox with a quick glance at the Gmail icon on the tab header.

EXTRAS

Clicking on the cog icon followed by Settings will present you with a bewildering number of features that you can activate and use within Gmail. Add a signature, Desktop Notifications, Personal Level Indicators, create Labels, use a new Theme, send mail as another account, create filters and block addresses, and even alter the default text style, there's plenty to include.


Settings
General
Labels
Inbox
Accounts and Import
Filters and blocked addresses
Forwarding and POP/IMAP
Add-ons
Chat
Advanced
Offline
Themes
Learn more
Change language settings for other Google products
Edit tools
Developer settings

Language: Gmail display language: English (UK)
☑ Enable input tools - Use various text input tools to type in the language of your choice
● Right-to-left editing support off
○ Right-to-left editing support on

Phone numbers: Default country code: United Kingdom

Maximum page size: Show 50 conversations per page

Undo Send: Send cancellation period: 5 seconds

Default reply behaviour:
○ Reply
○ Reply all

Hover actions:
● Enable hover actions
○ Disable hover actions

Send and Archive:
○ Show "Send & Archive" button in reply
● Hide "Send & Archive" button in reply

Default text style:

Images:
● Always display external images
○ Ask before displaying external images

Dynamic email:
☐ Enable dynamic email

Smart Compose personalisation:
● Personalisation on
○ Personalisation off

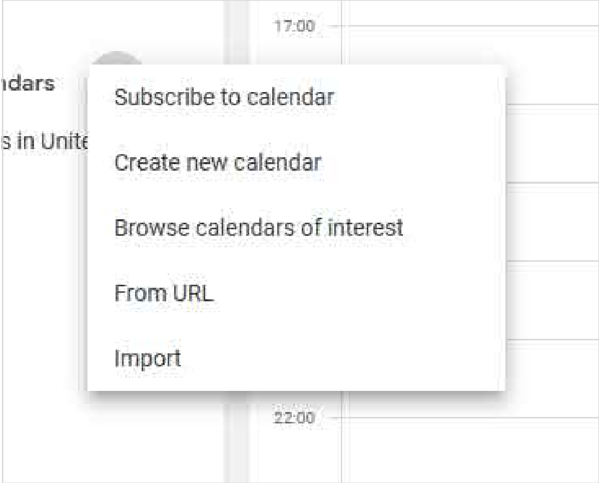
Auto-correct:
● Auto-correct on
○ Auto-correct off

Calendar

Google's Calendar cloud app can do far more than simply letting you know when your doctor's appointment is due. With it, you can share multiple calendars, create countdown timers, receive daily agendas to your inbox and much more.

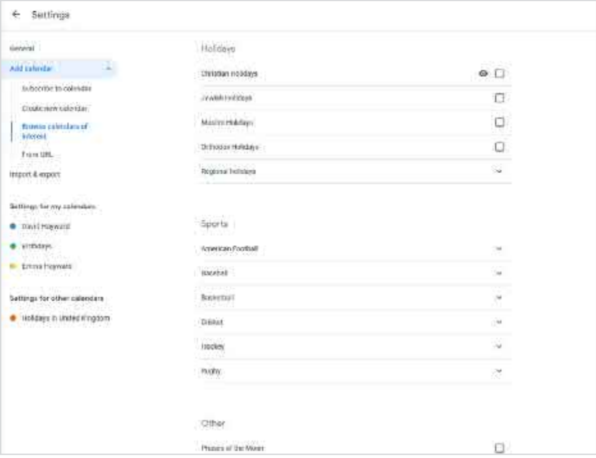
ADD CALENDARS

You can add another Google account user's Calendar to your views easily by clicking on the 'Add a Friend's Calendar' box, under the Other Calendars option. This launches a separate window, which sends a message to the other user's mail account requesting permission.


17:00
Subscribe to calendar
Create new calendar
Browse calendars of interest
From URL
Import
22:00

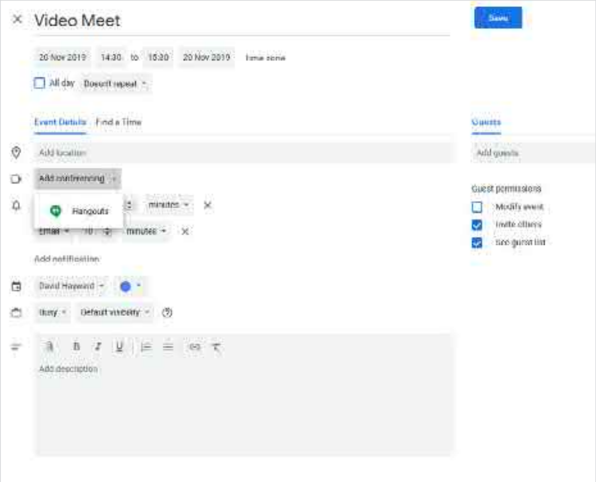
IMPORT CALENDARS

You can import all sorts of Interesting Calendars by clicking on the down arrow, next to **Other Calendars**, and choosing **Browse Calendars of Interest** from the menu. You can now subscribe to calendars displaying international holidays, sporting events, phases of the moon, sunrise and sunset times for your locale and more.


Settings
Add calendar
Holidays
Christian holidays
Sports
American Football
Other

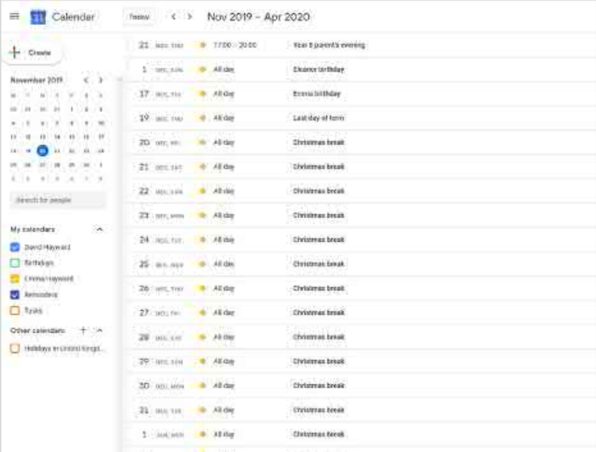
VIDEO CALLS

It's surprisingly easy to add a video call to any Calendar appointment. All you need to do is click on the Create button in Calendar, set up the event, and click **Add Video Call**. When the invitees receive their Calendar event email, there'll be a link to a Google Hangouts video chat session.


Video Meet
20 Nov 2019
14:30
to
20 Nov 2019
All day
Event Details
Find a Time
Guests
Hangouts
minutes
Guest permissions
Add description

VIEWS

The various Calendar views: Day, Week, Month, and 4 Days are fairly self-explanatory. The Schedule view, though, lists your events or appointments in chronological order, with the ability to expand and edit each event accordingly. If you have the Birthdays options enabled in My Calendars, you'll even have your Google contacts' birthdays included.

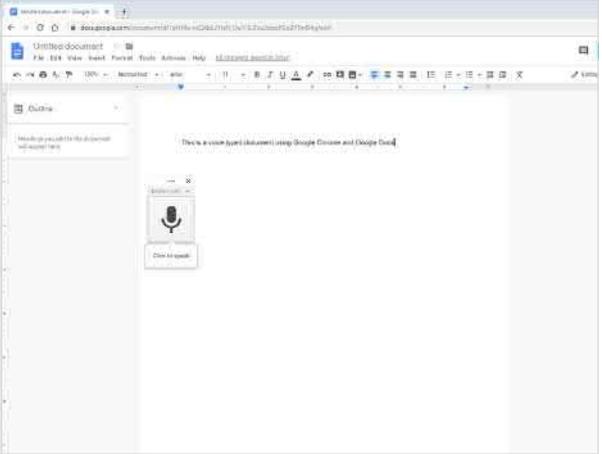

Calendar
Nov 2019 – Apr 2020
Create
November 2019
My calendars
Other calendars

Docs

On the surface, Google docs might appear to be just another, simplistic word processor; albeit one that's online and cloud-based. However, dig a little deeper and you'll come across some surprisingly powerful features.

VOICE TYPING

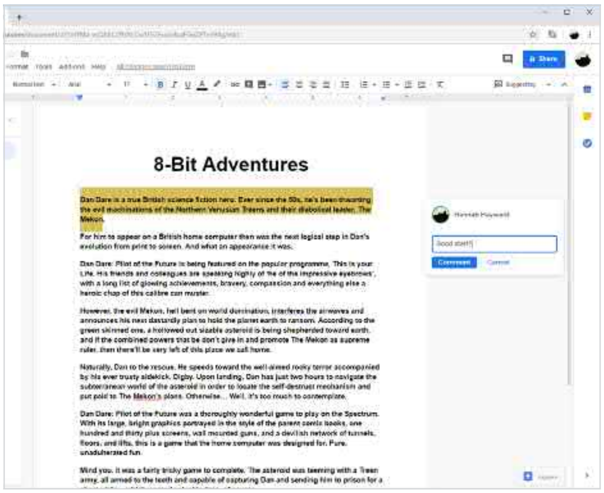
The days of using the keyboard for entering text are seriously numbered. If you use Google Chrome, and you have a microphone attached to your system, click the **Tools** option in the Docs menu, followed by **Voice Typing**. Make sure the microphone is working, and click the Mic icon to start talking. Click the icon again to stop Voice Typing.



This is a voice typed document using Google Chrome and Google Docs

TRACK CHANGES

When you're collaborating on a document with numerous people, it can be difficult to track changes. Click on the Pencil icon in the upper right corner of the Docs interface and select Suggesting. This tracks changes, and allows other collaborators to accept or reject the edit.



8-Bit Adventures

Dan Dare is a true British science fiction hero. Ever since the 50s, he's been thwarting the evil machinations of the Northern Venusian Treens and their diabolical leader, The Mekon.

For him to appear on a British home computer then was the next logical step in Dan's evolution from print to screen. And what an appearance it was.

Dan Dare: Pilot of the Future is being featured on the popular programme, This is your Life. His friends and colleagues are speaking highly of 'he of the impressive eyebrows', with a long list of glowing achievements, bravery, compassion and everything else a heroic chap of this calibre can muster.

However, the evil Mekon, hell bent on world domination, interferes the airwaves and announces his next dastardly plan to hold the planet earth to ransom. According to the green skinned one, a hollowed out sizable asteroid is being shepherded toward earth, and if the combined powers that be don't give in and promote The Mekon as supreme ruler, then there'll be very left of this place we call home.

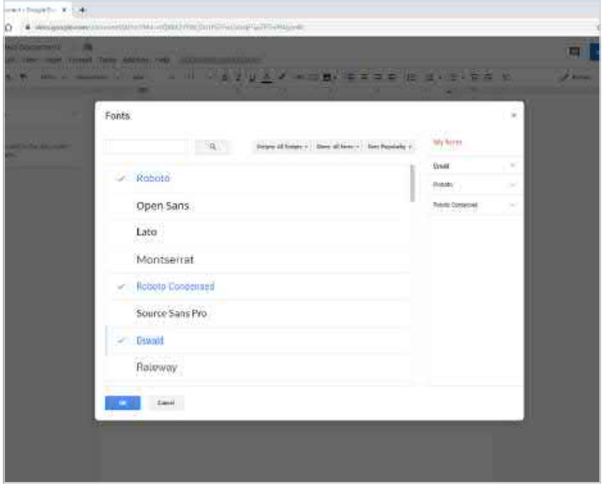
Naturally, Dan to the rescue. He speeds toward the well-aimed rocky terror accompanied by his ever trusty sidekick, Digby. Upon landing, Dan has just two hours to navigate the subterranean world of the asteroid in order to locate the self-destruct mechanism and put paid to The Mekon's plans. Otherwise... Well, it's too much to contemplate.

Dan Dare: Pilot of the Future was a thoroughly wonderful game to play on the Spectrum. With its large, bright graphics portrayed in the style of the parent comic books, one hundred and thirty plus screens, wall mounted guns, and a devilish network of tunnels, floors, and lifts, this is a game that the home computer was designed for. Pure, unadulterated fun.

Mind you, it was a fairly tricky game to complete. The asteroid was teeming with a Treen army, all armed to the teeth and capable of capturing Dan and sending him to prison for a

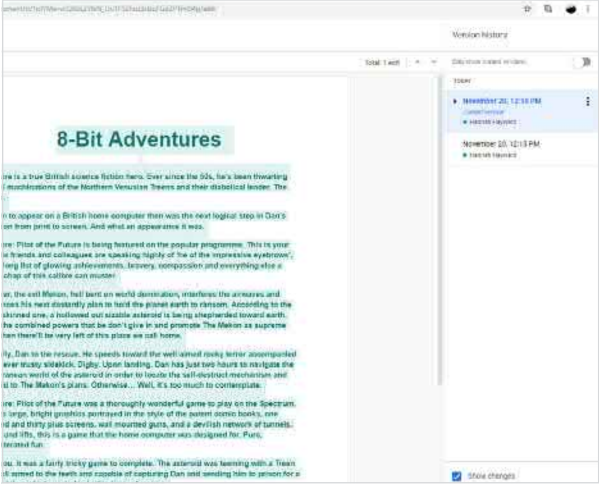
FONTS

Docs has a good number of fonts from which to choose when creating a new document. If you want, though, simply click on the fonts box, followed by **More Fonts**. This brings up a new window displaying hundreds more from which to choose. Just click the font to start using it.



VERSION HISTORY

While collaborating, keeping track of a document's revision history is as important as tracking its on-the-fly changes. Click on **File**, followed by **See Version History**, to view the entire history of the chosen document.



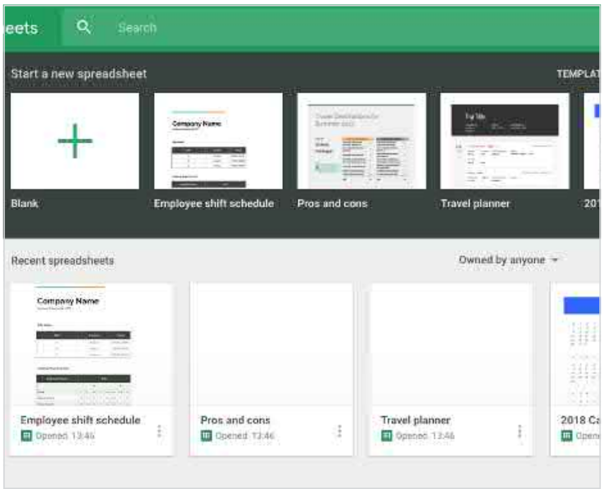
8-Bit Adventures

Sheets

Google Sheets is another element to Google's online office suite, this time as a lightweight spreadsheet app. It works in much the same way as Microsoft's Excel, however without the more heavy-duty features.

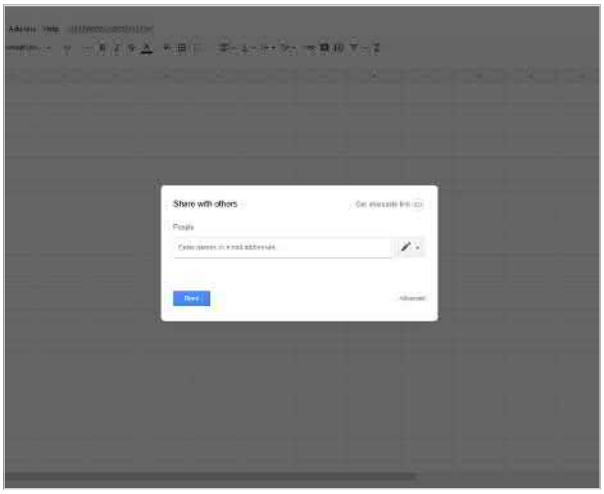
TEMPLATES

There are different ways of getting started with Google Sheets. You can create a new spreadsheet, upload an existing spreadsheet from a computer, or use a template from the Templates Gallery, to create a spreadsheet with a specific purpose.


eets
Search
Start a new spreadsheet
TEMPLAT
Blank
Employee shift schedule
Pros and cons
Travel planner
Recent spreadsheets
Owned by anyone
Employee shift schedule
Opened 13:46
Pros and cons
Opened 13:46
Travel planner
Opened 13:46
2018 C

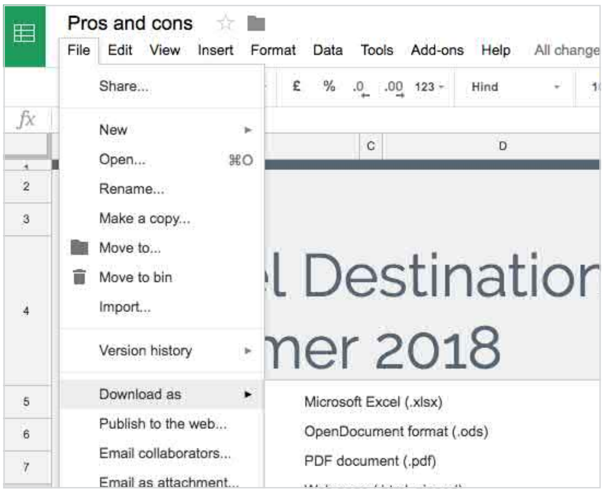
SHARING

Sharing and collaboration within Sheets is easy. Simply click the Share button in the corner of the screen, then add the Email collaborators and enter the details of those with whom you wish to share the file. This allows you to edit and collaborate on the Google Sheet document online.


Share with others
People
Done
Advanced

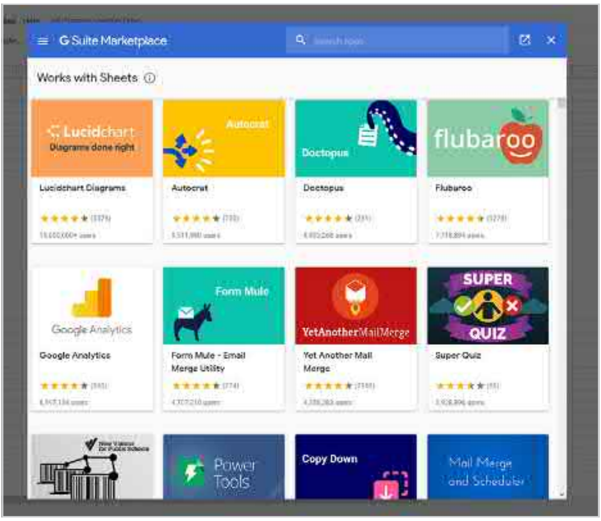
CONVERSIONS

When you upload a spreadsheet into Google Drive, you have the choice to keep your spreadsheet in the original format or convert it into the Google Docs format. If you don't convert the spreadsheet, you may not be able to access it collaboratively within your teams.


Pros and cons
File
Edit
View
Insert
Format
Data
Tools
Add-ons
Help
All change
Share...
New
Open... ⌘O
Rename...
Make a copy...
Move to...
Move to bin
Import...
Version history
Download as
Publish to the web...
Email collaborators...
Email as attachment...
Microsoft Excel (.xlsx)
OpenDocument format (.ods)
PDF document (.pdf)
l Destinatior
mer 2018

ADD-ONS

There are some interesting Add-Ons available for Sheets, which can be found within the Add-Ons menu options (along the top of the main Sheets window). These include functions such as mail merge, Google Analytics and more.

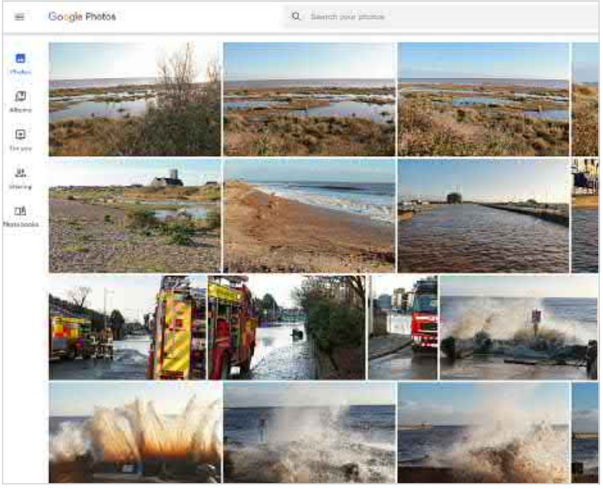

G Suite Marketplace
Works with Sheets
Lucidchart Diagrams
Autocrat
Doctopus
Flubaroo
Google Analytics
Form Mule - Email Merge Utility
Yet Another Mail Merge
Super Quiz
Power Tools
Copy Down
Mail Merge and Scheduler

Photos

We live in a world where most of us now carry around a reasonably powerful digital camera. Our smartphones are regularly used to take images of events and important times in our lives. It's important, then, that they are backed up to a cloud service.

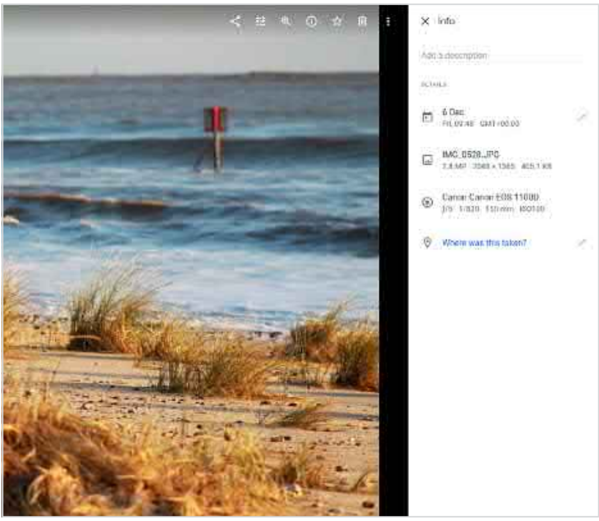
BACKUPS

Automatic backups are important to many users, particularly of their images. Imagine taking an important picture, only to drop your device into the sea moments later. Providing you have a good connection, that image is backed-up and categorised with a time and date stamp.


Google Photos
Search your photos
Photos
Albums
For you
Sharing
Photo books

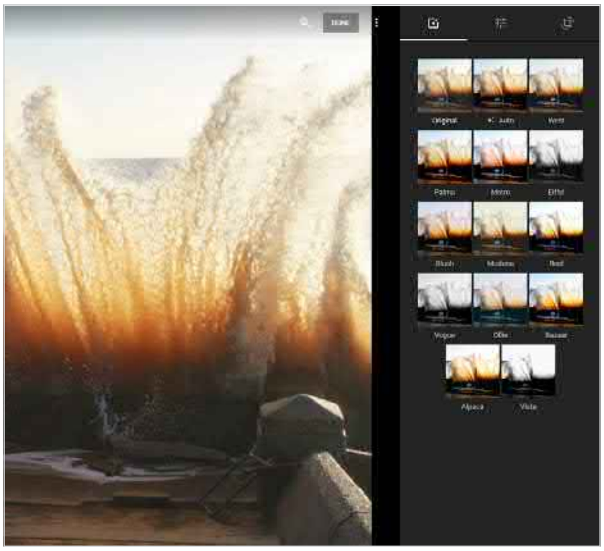
METADATA

You can even upload images that haven't been taken by a smartphone. What's more, if you click on the Info button for a non-smartphone image, it tells you which device took the picture and that device's settings at the time.


Info
Add a description
DETAILS
6 Dec
IMG_0528.JPG
Canon Canon EOS 1100D
Where was this taken?

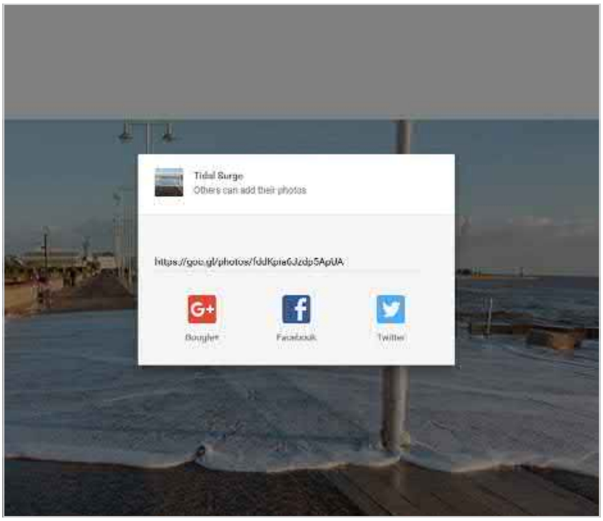
EDITING

Each image stored in Photos is editable with a number of filters, along with altering the contrast and colours and rotating. The effects are minimal, but with the right image, they can be quite stunning.


DONE
Original
Auto
West
Palma
Metro
Eiffel
Blush
Modena
Reel
Vogue
Ollie
Bazaar
Alpaca
Vista

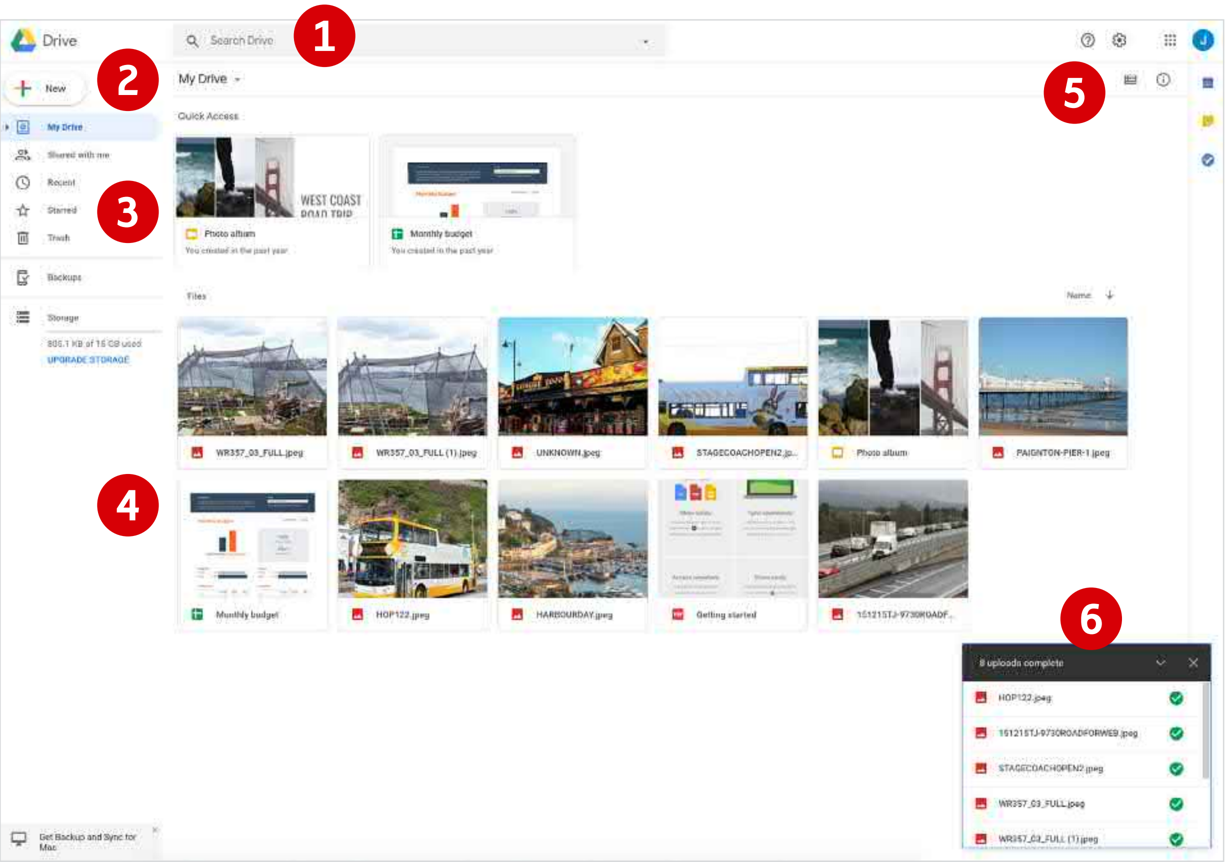
SHARED ALBUMS

You can easily share your images by creating a Shared Album or by sharing individual images with your Gmail contacts. You can even post the image to other sites such as Facebook or Twitter.


Tidal Surge
Others can add their photos
https://goo.gl/photos/fddKpia6Jzdp5ApUA
Google+
Facebook
Twitter

How to Use Google Drive

Google Drive is a free storage service which allows you to store images, folders and documents in the Cloud. These files and documents can then be accessed from any tablet, phone or computer via the Google Drive software. Not only is this a great way to free up space on your devices, it also lets you access your files from almost anywhere.


1
2
3
4
5
6
Drive
Search Drive
New
My Drive
Shared with me
Recent
Starred
Trash
Backups
Storage
805.1 KB of 15 GB used
UPGRADE STORAGE
Quick Access
Photo album
You created in the past year
Monthly budget
You created in the past year
Files
Name
WR357_03_FULL.jpeg
WR357_03_FULL (1).jpeg
UNKNOWN.jpeg
STAGECOACHOPEN2.jp...
Photo album
PAIGNTON-PIER-1.jpeg
Monthly budget
HOP122.jpeg
HARBOURDAY.jpeg
Getting started
151215TJ-9730ROADF...
8 uploads complete
HOP122.jpeg
151215TJ-9730ROADFORWEB.jpeg
STAGECOACHOPEN2.jpeg
WR357_03_FULL.jpeg
WR357_03_FULL (1).jpeg
Get Backup and Sync for Mac

1 SEARCH

You can search Google Drive in the same way that you can search Gmail or one of the other Google products.

2 NEW

Click the New button to open a new document, spreadsheet, presentation, form or drawing.

3 FOLDERS

Your preset Google Drive folders are shown here, along with any that you have created. Click More to see Labels.

4 CURRENT FOLDER

The contents of the currently selected folder are shown here. You can change how items are displayed (List or Grid).

5 DISPLAY CONTROLS

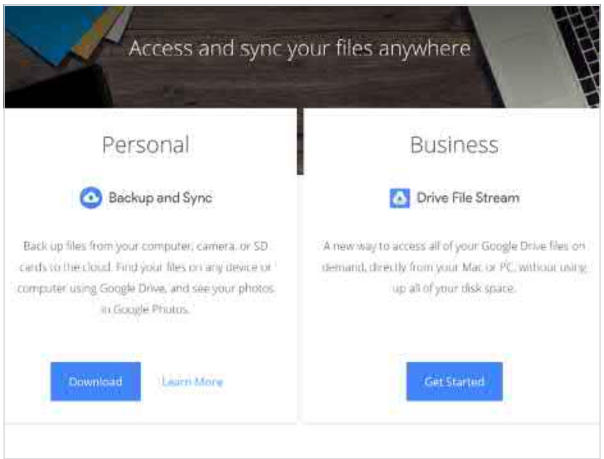
Change how items in your folders are displayed and how they are sorted. The gear icon lets you access the G Drive settings.

6 UPLOAD LIST

When you upload multiple items to Google Drive, the Upload box appears, to show you the progress of each item.

INSTALLING BACKUP AND SYNC – PC/MAC

STEP 1 The first thing you need to do is check your Google Drive access status. You can do this at drive.google.com/start. If you have access, you will see a blue Download button.


Access and sync your files anywhere

Personal

Backup and Sync

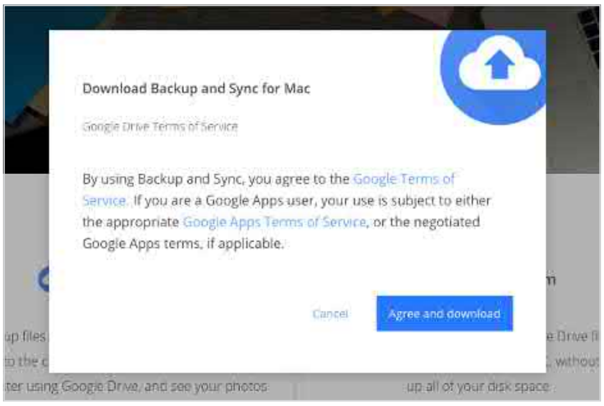
Back up files from your computer, camera, or SD cards to the cloud. Find your files on any device or computer using Google Drive, and see your photos in Google Photos.

Business

Drive File Stream

A new way to access all of your Google Drive files on demand, directly from your Mac or PC, without using up all of your disk space.

STEP 2 Click on the Download button and when asked to, Agree to the Google Terms of Service. You must do this before you start the download.


Download Backup and Sync for Mac

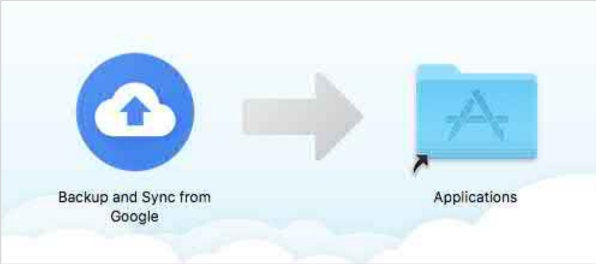
Google Drive Terms of Service

By using Backup and Sync, you agree to the Google Terms of Service. If you are a Google Apps user, your use is subject to either the appropriate Google Apps Terms of Service, or the negotiated Google Apps terms, if applicable.

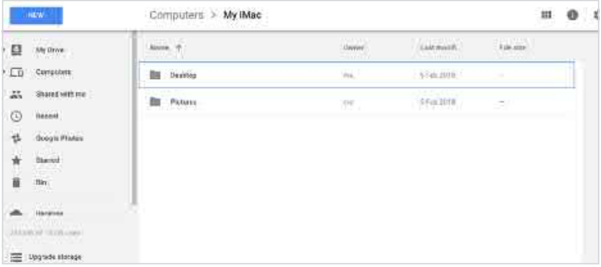
FREE GOOGLE STORAGE

Google Drive, Google+ Photos and Gmail give you storage space for nothing so you can keep your files, emails and photos accessible from any device, anywhere. If you reach the free storage limit, everything in Google Drive, Google+ Photos, and Gmail will still be accessible but you won't be able to create or add anything new. You'll still be able to create Google Docs, since they don't take up any storage space. For G+ Photos, you will only be able to upload new photos and videos under certain size limits.

STEP 3 Click on Download Backup and sync and follow the instructions to install the software on your computer. The site will automatically detect whether it is PC or Mac.



STEP 4 You will be asked to sign in again and will then be asked to sync. This creates a new folder on your computer which is used as the storage folder.



GOOGLE DRIVE ON ANDROID AND IOS

You can download the Google Drive app for mobile devices free of charge, from the Play Store or App Store. This allows you to both view and edit files in your Google Drive folders.

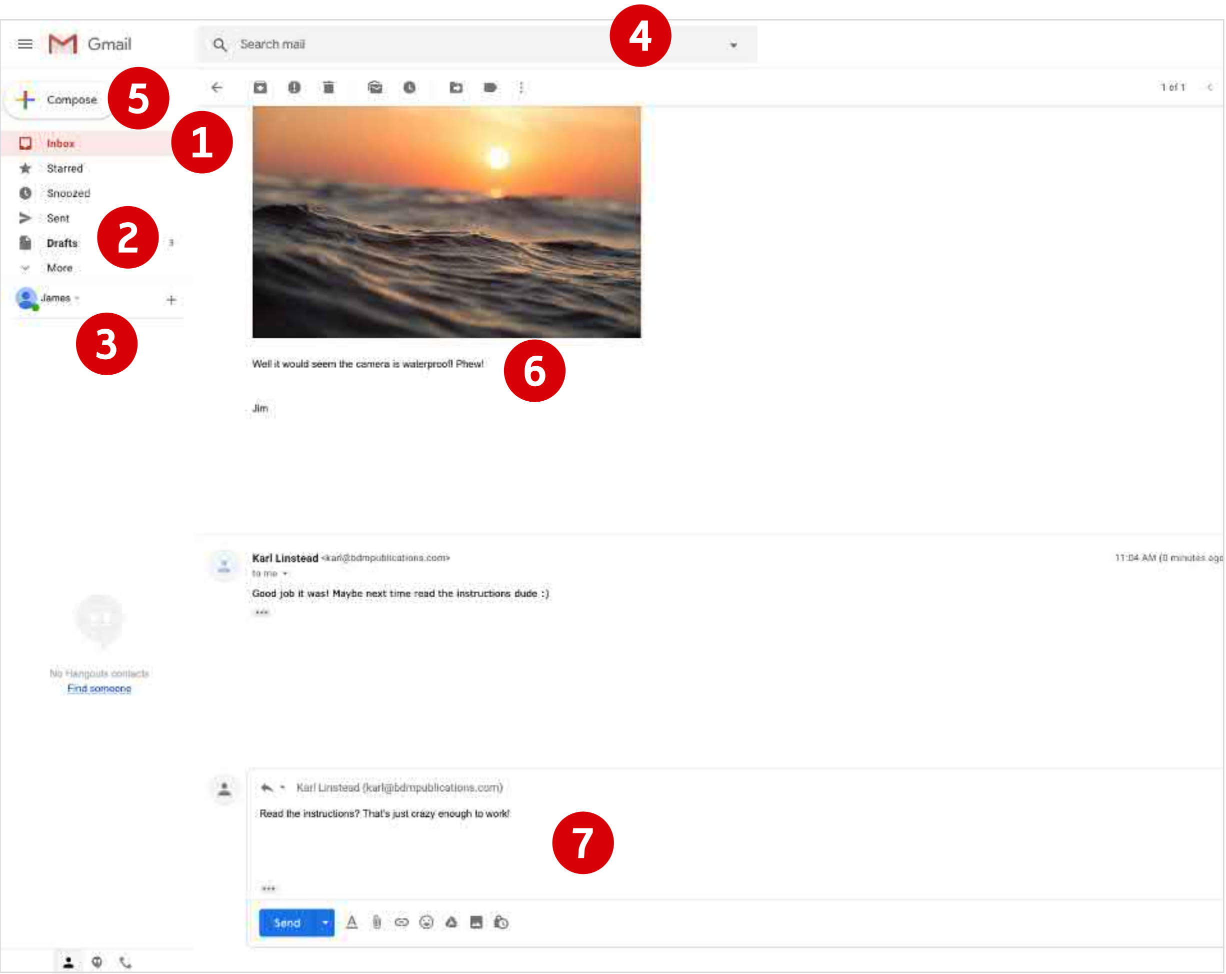
Once downloaded, the app should automatically sign in using the same Google account details you entered on your computer (which is also, hopefully, the one with which you set up your Android or iOS device).

You will now be able to see any files you placed in the Google Drive folder on your computer. If you had the Google Docs app installed, this will now be replaced by Google Drive. To create a new doc, tap Menu › New › Document, or Spreadsheet, etc.

Welcome to Google Drive
swipe up to begin
Sign in

How to Use Gmail

Gmail is an integral element of the Google app suite, an email platform that works seamlessly on whichever OS you use, quickly becoming a key part of your daily routine.



Well it would seem the camera is waterproof! Phew!

Jim

Karl Linstead <karl@bdmpublications.com>
to me
11:04 AM (0 minutes ago

Good job it was! Maybe next time read the instructions dude :)

Karl Linstead (karl@bdmpublications.com)

Read the instructions? That's just crazy enough to work!

1 MAILBOXES

These links let you display the messages in those mailboxes. A number next to any mailbox shows the amount of unread messages, rather than the total amount in the mailbox.

CREATING A GMAIL ACCOUNT

You can either connect a Gmail account to your main Google account or you can create a completely new account from scratch. If you connect an account, you will be able to use your new Gmail address or your original Google account email to sign in.

2 LABELS

Labels allow you to categorise your messages into various pre-set or custom folders. You can save messages under more than one label for better cross-referencing.

3 CHAT CONTROLS

This section shows a list of your available Chat contacts, as well as containing the various chat controls: Add Contact, Status Update, etc. You can read more about Gmail Chat later in this section.

4 SEARCH BOX

Search for any message or contact in your Gmail inbox. Clicking on the small arrow at the end of the search box allows you to refine your search in several different ways.

5 MESSAGE CONTROLS

This set of buttons only appears when viewing a message. They allow you to archive, delete or report the message as spam, as well as letting you move the message to a particular mailbox or apply a label. The More button reveals even more controls.

6 CONVERSATION

Gmail displays multiple messages from a contact in a conversation format. If someone replies to your message, both the reply and the original message are shown stacked in the window. You can expand the conversation to make it easier to read.

7 QUICK REPLY

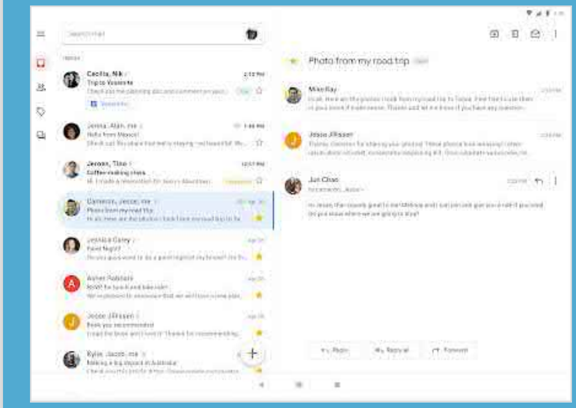
Click anywhere in this box to start a quick reply to the last message in the conversation. To Forward a message, click the Forward tab in the quick reply window that opens. Quick reply offers the same formatting options as creating a new message does.

GMAIL ON ANDROID & IOS

You can download the Gmail app for mobile devices, free of charge, from the Play Store or App Store. This allows you to use Gmail on the go.

Once downloaded, the app should automatically sign in using the same Google account details you entered on your computer (hopefully, this is also the one with which you set up your Android or iOS device).

You will now be able to see all of the folders and emails you use and have sent/received on your computer, albeit on your smartphone or tablet.

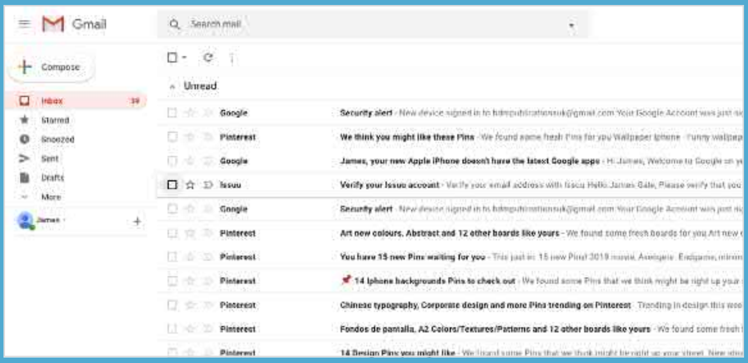


HOW TO COMPOSE A NEW EMAIL

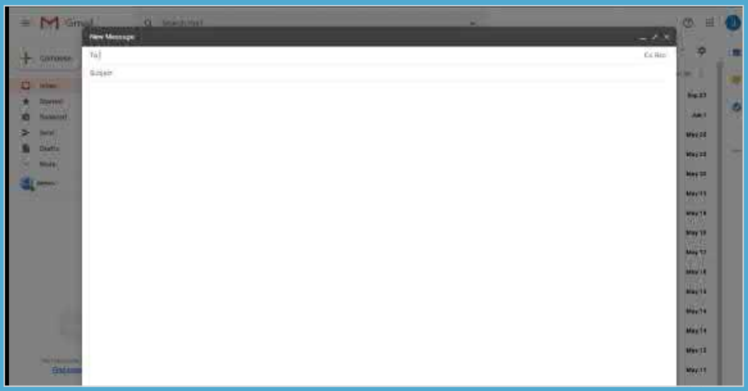
Google has incorporated a unique way to compose a message in Gmail which allows you to retain on screen whatever you were looking at, inbox, a message, etc. while composing a new message in a separate window. At the time of writing, this was still an optional feature but could be made standard at any time.

To activate this compose window, click the Compose button and a new window will open at the bottom right of the Gmail window. Whatever you were viewing before you clicked Compose will remain on screen but you can click through into a different mailbox or open a message without the compose window disappearing.

The new compose window contains many of the options. Click in the To field and start to type a name or email address to see a list of known contacts. The icons at the bottom let you control formatting and attachments. If you want to switch back to the old compose method, click the Send icon at the bottom of the window.



Google Security alert
Pinterest We think you might like these Pins
Google James, your new Apple iPhone doesn't have the latest Google apps
Issuu Verify your Issuu account
Google Security alert
Pinterest Art new colours, Abstract and 12 other boards like yours
Pinterest You have 15 new Pins waiting for you
Pinterest 14 Iphone backgrounds Pins to check out
Pinterest Chinese typography, Corporate design and more Pins trending on Pinterest
Pinterest Fondos de pantalla, A2 Colors/Textures/Patterns and 12 other boards like yours
Pinterest 14 Design Pins you might like



Cloud Technologies:
The Environment

To paraphrase Morpheus from the film, The Matrix, "The cloud is everywhere; it is all around us". While that may sound sinister, it simply means that cloud technologies have become such a huge part of our everyday lives that it's difficult to find areas where they aren't involved. But rather than focusing on how all-consuming and nefarious the cloud sounds, let's look at how the cloud has helped push technology past previous limits and into a brighter future.

When we look at cloud technologies, we normally think of how it enables collaboration, reduces the cost of digital ownership, ease of access, simplified management and the ability to securely store content. One aspect, however, that's often overlooked is the environmental impact cloud technologies have on our world.

GREEN CLOUDS

Global warming is a, excuse the pun, hot topic at the moment. The arguments for and against; those who believe our climate is changing rapidly, due to our industry, versus those who don't, and the impact of pollution over cost have been ongoing for a while. However, the problem isn't going away, in fact, depending on to whom you listen, it's possibly going to get a lot worse very quickly.

Using cloud solutions to help reduce the environmental impact of modern technology may seem somewhat counterproductive. After all, a cloud service runs on an extensive cluster farm of many, powerful servers inside a datacentre, all requiring a large amount of energy to run. However, that's quite the opposite way of thinking.

Consider a scenario involving a thousand different companies, all of which have server rooms filled with several servers and other equipment. The total energy requirements to keep these thousand server rooms up and running, are quite substantial. But what if all those companies decided to adopt a cloud approach to their technology needs and, instead, used virtualisation technology within a cloud service. The service could essentially house all of those thousand companies' needs within the resource limitations of just a fraction of the datacentre's cluster.

Cloud service providers are, in fact, the leading drivers in emissions savings, while reducing technology's impact on the environment through resource virtualisation, and data centres utilising renewable energy sources. These solutions can include security systems, computing technology and storage efficiencies, to name but a few. Energy is typically lost due to a company's server underuse, causing servers to sit idle and building what's known as e-waste. Datacentres that utilise cloud technologies require less equipment to monitor systems and manage workflows; freeing up the energy typically consumed by machines and reducing the total physical server footprint. Furthermore, such environments provide the flexibility to expand a company's technology infrastructure as its available funds increase.

In essence, a cloud technology datacentre is capable of housing the virtual server rooms of tens, if not hundreds of thousands, of individual companies. Each virtual server room saves the individual company money, as well as cutting down on the eco-footprint a server room generates through power use, air-condition and so on.

AIR MILES

It is said that an economy flight from London to New York emits an estimated 0.67 tonnes of CO2 per passenger, which is roughly the equivalent to 11% of the average, annual emissions for someone living in the UK.

In total, aviation contributes to about 2% of the world's global carbon emissions, and that doesn't include the emissions generated in the production of the aircraft or the making of its fuel. In short, although 2% doesn't sound like much, it's something that can easily be removed from the equation.

Cloud technologies already exist and have done for quite some time. They enable individuals and teams, spread across the globe, to meet face to face in virtual spaces. This saves the companies involved money and time, saves each individual involved the hassle of travelling across the world and saves the impact on the environment.

While it's not always possible to meet over a virtual space, it's a solution that can, with relative ease, be adopted by companies.

RENEWABLE ENERGY

Using renewable energy sources is a worldwide goal for most companies these days. However, it's not easy for smaller businesses to adopt. Datacentres require a lot of power to run; but, you'll be surprised to discover that, overall, they are far more efficient than most mid-sized, inner-city company buildings.

Google, for example, recently announced that it's the first large-scale datacentre to achieve 100% renewable energy two years running. "Our first priority is to use as little energy as possible, operating our offices and facilities sustainably, with a strong focus on our data centres," said Neha Palmer, Director of Operations, Energy and Location Strategy, Google.

The company utilises a number strategies to ensure it's energy efficient; through better server designs and advances in artificial intelligence, a Google datacentre is now seven times more energy-efficient than it was just five years ago.

Plus, Google also ensures that the energy it uses comes from wind or solar farms built near the facilities and that 100% of the heat waste from the servers is recycled back into the system for use elsewhere. And it's not just Google that's on board with energy-saving, most, if not all, datacentres now adhere to strict environmental guidelines and policies, ensuring they are between 90 to 100% energy efficient.

MONEY

One of the main draws for any company to opt for a cloud approach is cost reduction. Cloud computing not only allows firms to reduce capital and operational costs but also presents an opportunity to streamline IT management and focus on more revenue-generating projects; rather than daily IT tasks and issues. What does this mean moving forward? The green case for the cloud unveils a compelling opportunity to contribute to something much bigger than the current shaky business climate. Cloud computing presents firms with the ability to help mitigate the consumption of energy, reduce their carbon footprint and move toward a greener, smarter future.

Moreover, the Smart 2020 report estimates that, within five years, information technology-enabled energy efficiency translates into approximately $946.5 billion worth of cost savings when companies adopt a cloud technology approach.

THE FUTURE

Global IT energy consumption equates to around 9% of the total environmental CO2 impact, of which a traditional datacentre was only a small fraction. These days, the datacentre's emissions barely scrape the surface, but overall IT emissions are still high.

Some companies won't be able to initialise a total move into the cloud, but for those that can, the reduction in both cost and environmental impact will make a significant difference to the future. But it's not just IT alone, take into consideration the travel impact, the environmental cost of commuting daily. Perhaps in the future, we can all work from home, in the cloud, connected to our workplaces?

Office 365 products

What will you do with your

64 **OneDrive**
See what Microsoft's OneDrive has to offer you, the user.

65 **How to Use Office 365**
Learn how to use the most popular productivity suite in the world, Microsoft Office 365.

68 **How to Use Office Online**
Discover how you can use Microsoft's entire Office suite online, alongside its OneDrive Cloud storage solution.

Microsoft Cloud – In Focus

Microsoft's involvement with consumer-level cloud services is as equally impressive as that of Google.

Not only does the Redmond company offer all the usual storage, email and sharing services normally associated with cloud computing, but it also includes cloud-based versions of Office and other apps.

For the consumer, Microsoft's cloud services are invaluable.

62 What are Microsoft's Cloud Apps?
64 OneDrive
65 Office 365
66 How to Use OneDrive
68 How to Use Office Online

What are Microsoft's Cloud Apps?

Like Google, Microsoft has invested a considerable sum bringing its cloud foundations to the end-user and SMB, as well as much bigger enterprise clients. OneDrive is the more prominent cloud service that the company offers, but Microsoft has also unleashed its Office apps to the cloud.

OFFICE IN THE CLOUDS

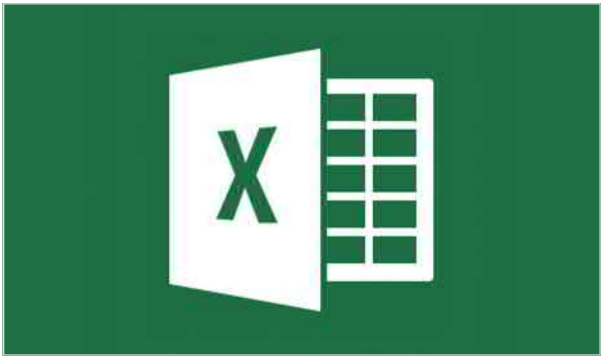
There are quite a lot of cloud services on offer from the Redmond Company, but for the sakes of the consumer end-user, these are by far the most utilised.

ONEDRIVE

OneDrive is Microsoft's answer to cloud storage for both consumers and business users alike. The basic plan comes in with a free 5GB of storage available, but you can soon expand that to 50GB or 1TB, all for a fairly reasonable monthly fee.

EXCEL ONLINE

As you expect, it's not just word processing that Microsoft has exported to its cloud servers. Excel is also available through the Office Online portal, and you can use a fully functional, modern version of the popular spreadsheet app via your Microsoft account.



WORD ONLINE

You may not be aware of this, but the world's most used word processor is available as a cloud application. We are, of course, talking about MS Word. Using its latest version, you can log in to your Microsoft account and use the online version of Word in your browser as you would the desktop version.

POWERPOINT ONLINE

Often ridiculed as the bane of the office meeting, Microsoft's PowerPoint gets a bad reputation. You can't deny though what a powerful, and well-used resource it actually is. If you don't have a locally installed version, then the company's new cloud-based app will suit you just as well.

ONENOTE ONLINE

Microsoft's OneNote may not be used quite as much by the consumer as its other Office apps, but it's still a remarkably handy tool. You can share notes with multiple users, drawings, screen clippings and audio commentaries, all with this digital notebook.

SWAY

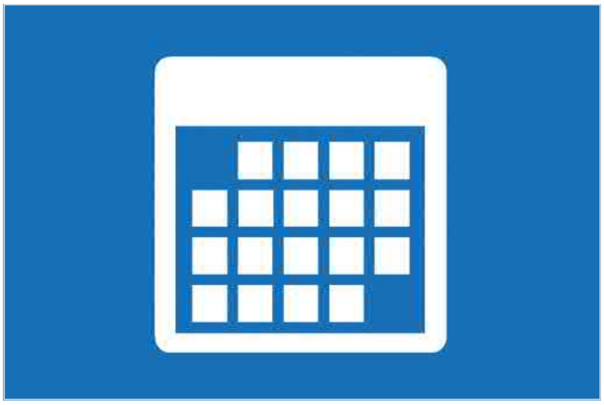
Microsoft Sway is described as a digital storytelling app. It's designed for creating presentations in an easier-to-view format than that of PowerPoint; in fact, think of it as an alternative to PowerPoint. There's a lot you get from it, and it's certainly worth exploring.

MAIL

Microsoft has had some version of an email client since its early Windows 3.11 days. Outlook replaced MS Mail in later life, and although the company has re-adopted the Mail name once more, it is still essentially Outlook. Mail is the company's cloud-based app that interacts with its cloud-based email solution.

CALENDAR

MS Calendar Online is a pretty self-explanatory app. If you use the desktop version with Windows 8.1 and 10, then you'll be able to get to all your appointments and events via the online, cloud app version.



SKYPE

Launched in 2003 and purchased by Microsoft in 2011 for the princely sum of $8.5 billion, Skype is one of the Internet's most prominent success stories. With an estimated 300 million monthly active users, it's little wonder Microsoft brought Skype into its cloud services.

OFFICE 365

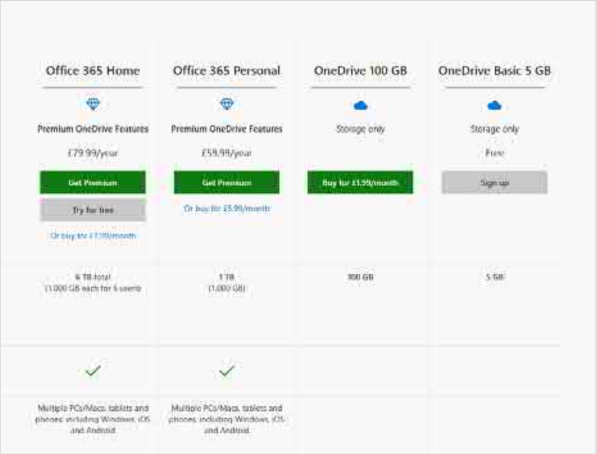
Office 365 is a slightly different version of a cloud-based service. It's a locally installed suite of Office programs, but it's sold through a subscription model and updates itself as long as you've paid for the subscription. It's designed to interact with Microsoft's cloud services far more seamlessly than the traditional desktop Office; in many ways, it's a hybrid cloud service.

OneDrive

Microsoft's OneDrive is the company's cloud-based storage service for its users; both business and home. It doesn't offer as much free storage out-of-the-box as Google's service, but the pricing for expansion is quite competitive.

STORAGE

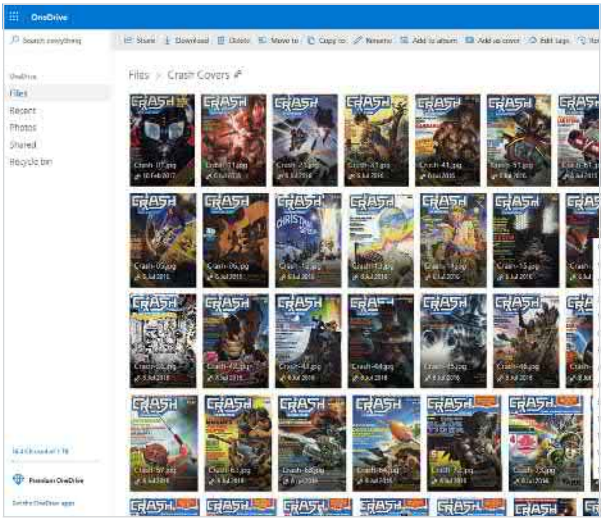
Although there's only 5GB of storage available (which is still quite a lot for most folks), you can easily upgrade to 100GB for just £1.99 per month. Beyond 100GB you can move up to 1TB of storage for just £59.99 per year, or opt for the more comprehensive solution of adding more users (six, with 1TB available each).



Office 365 Home	Office 365 Personal	OneDrive 100 GB	OneDrive Basic 5 GB
Premium OneDrive Features	Premium OneDrive Features	Storage only	Storage only
£79.99/year	£59.99/year		Free
Get Premium Try for free Or buy for £7.99/month	Get Premium Or buy for £5.99/month	Buy for £1.99/month	Sign up
6 TB total (1,000 GB each for 6 users)	1 TB (1,000 GB)	100 GB	5 GB
✓	✓		
Multiple PCs/Macs, tablets and phones including Windows, iOS and Android	Multiple PCs/Macs, tablets and phones including Windows, iOS and Android		

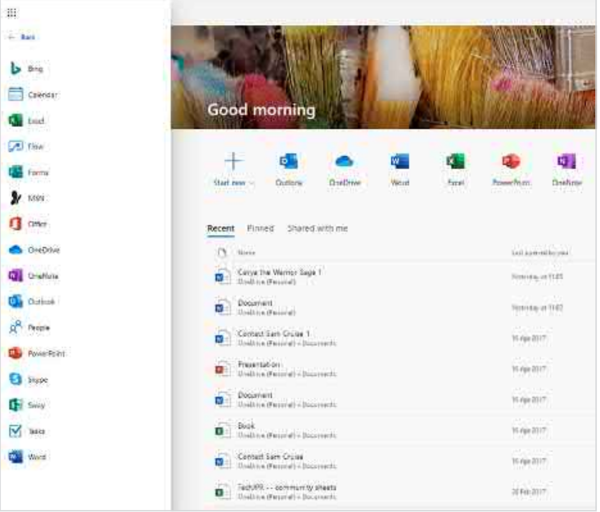
PHOTOS

Photos stored on your OneDrive account can be easily navigated and explored through the All Photos options from the main OneDrive menu. You'll also be able to create Albums, Tags and share them with others.


OneDrive
Files
Recent
Photos
Shared
Recycle bin
Files > Crash Covers
Premium OneDrive

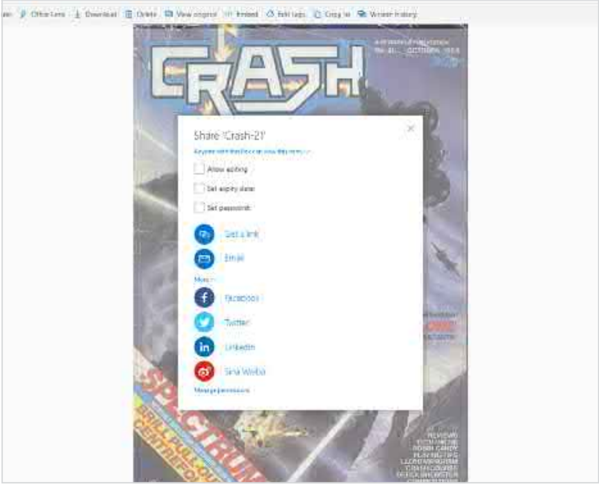
SECURE VAULT

A great feature of OneDrive is its newly added Personal Vault. Here you can store sensitive files in a heightened secure environment, complete with two-step verification, which auto-locks after twenty minutes of inactivity.


Good morning
Start new
Outlook
OneDrive
Word
Excel
PowerPoint
OneNote
Recent
Pinned
Shared with me
Bing
Calendar
Excel
Flow
Forms
MSN
Office
OneDrive
OneNote
Outlook
People
PowerPoint
Skype
Sway
Tasks
Word

SHARED CONTENT

Sharing content from your OneDrive account is exceptionally easy. You can create links to the shared folder, email the people with whom you're sharing it, or even post the share to any of the popular social media platforms.

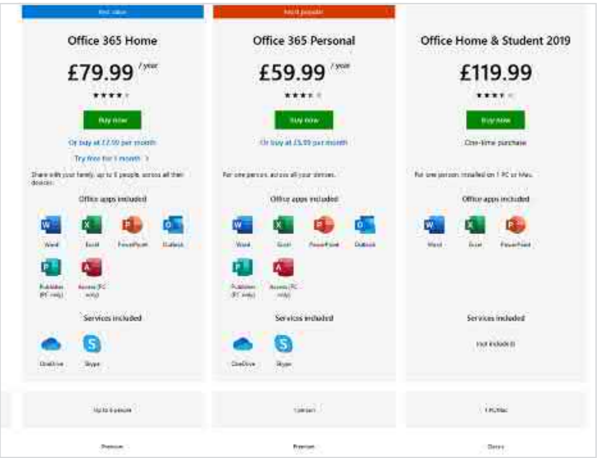

Share 'Crash-21'
Allow editing
Set expiry date
Set password
Get a link
Email
Facebook
Twitter
LinkedIn
Sina Weibo

Office 365

Office 365 is a hybrid solution, in that it's cloud-based while still being installed on your computer; think of it as offering the best of both worlds. It's the most-used productivity suite in the world, which the company strives, constantly, to improve and modernise for the current generation of mobile users.

PRICING

As Microsoft Office 365 is subscription-based, it means that your versions of the individual apps: Word, Excel, PowerPoint, and so on, are always going to be updated to the latest release. So there's no concern over compatibility, across versions, with other Office 365 users.



Office 365 Home
£79.99 /year

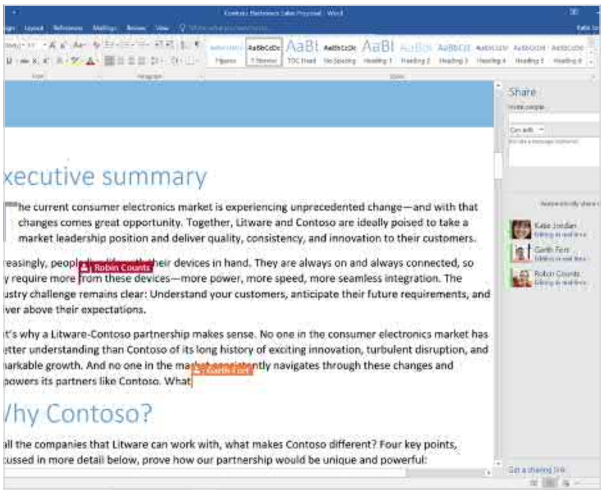
Office 365 Personal
£59.99 /year

Office Home & Student 2019
£119.99

Buy now
Buy now
Buy now
Office apps included
Office apps included
Office apps included
Services included
Services included
Services included

COLLABORATE

As Office 365 is partly cloud-based, you can set up better collaborations with other users than with previous Office versions. In Word, Excel, or PowerPoint, it's possible to have multiple people editing a document at the same time.



xecutive summary

he current consumer electronics market is experiencing unprecedented change—and with that changes comes great opportunity. Together, Litware and Contoso are ideally poised to take a market leadership position and deliver quality, consistency, and innovation to their customers.

reasingly, peopl heir devices in hand. They are always on and always connected, so y require more from these devices—more power, more speed, more seamless integration. The ustry challenge remains clear: Understand your customers, anticipate their future requirements, and iver above their expectations.

t's why a Litware-Contoso partnership makes sense. No one in the consumer electronics market has etter understanding than Contoso of its long history of exciting innovation, turbulent disruption, and narkable growth. And no one in the ma ntly navigates through these changes and powers its partners like Contoso. What

/hy Contoso?

ll the companies that Litware can work with, what makes Contoso different? Four key points, cussed in more detail below, prove how our partnership would be unique and powerful:

Robin Counts
Share

SUBSCRIPTIONS

What's more, with the Home Subscription you get Office 365 for PC, Mac, tablets and phones (for up to five users in your home) plus, with the company's OneDrive cloud service, 1TB of storage. You can even try it for free for a limited time.

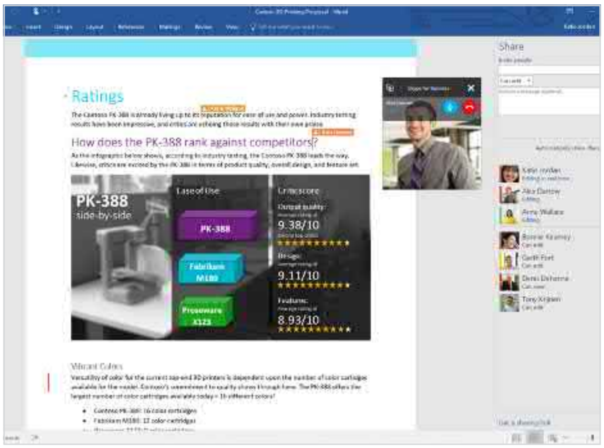
What is Office 365?

Office 365
yammer

The business apps you know and love, with all the benefits of the cloud.

SKYPE SESSIONS

Collaboration is one of the many benefits of working with a cloud-based service. To be able to have multiple people working on the same project from around the world, in real-time, is singularly impressive. Office 365 takes the collaboration element a step further, allowing you to launch a Skype session from within a working document.



Ratings

How does the PK-388 rank against competitors?

PK-388
side-by-side
Ease of Use
PK-388
Fabrikam M180
Proseware X123
Critic score
Output quality:
9.38/10
Design:
9.11/10
Features:
8.93/10
Share

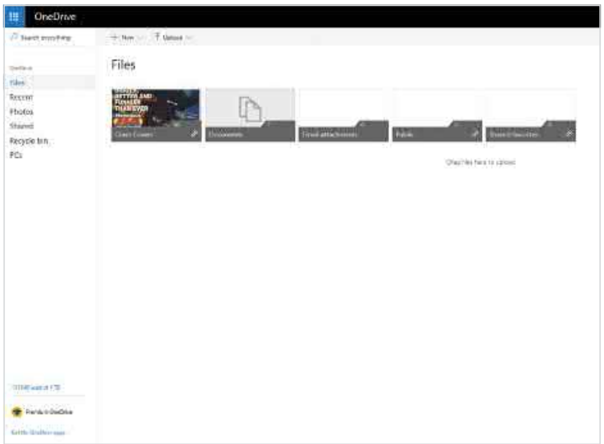
How to Use OneDrive

Microsoft's OneDrive may seem like a new concept but it's been available for the last nine years or so; having formally been known as SkyDrive and Windows Live folders. It has seen many upgrades during that time though and is now a far more capable cloud solution.

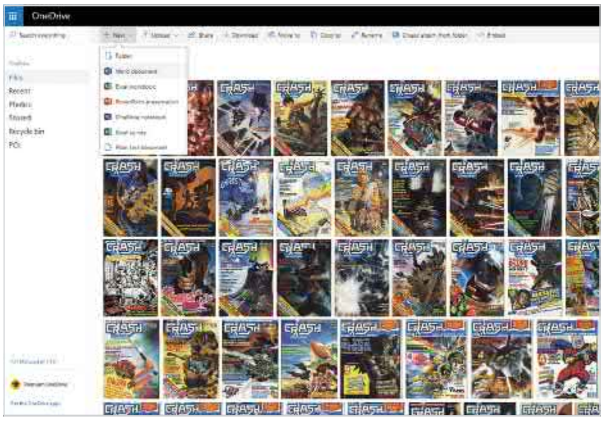
DO MORE WITH ONEDRIVE

To start using OneDrive you need a Microsoft account. Head on over to www.onedrive.live.com and click the Sign Up For Free button to begin.

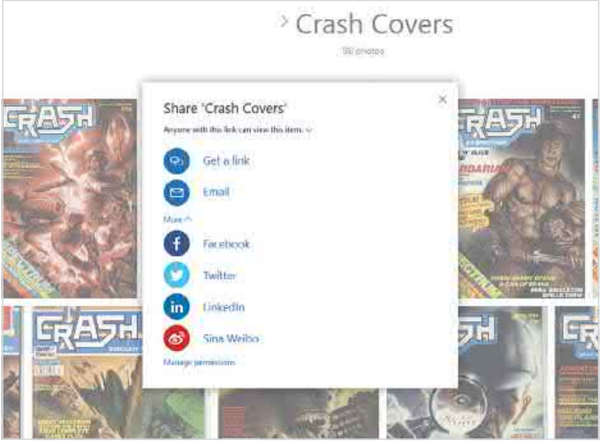
STEP 1 Once you've signed into your OneDrive account you'll be presented with the default Files view. From here you can drag and drop any files and content into your OneDrive window to populate it. You can also click the Upload link at the top of the screen to open your OS File Manger to browse for files or folders.


OneDrive
Files
Recent
Photos
Shared
Recycle bin
PCs

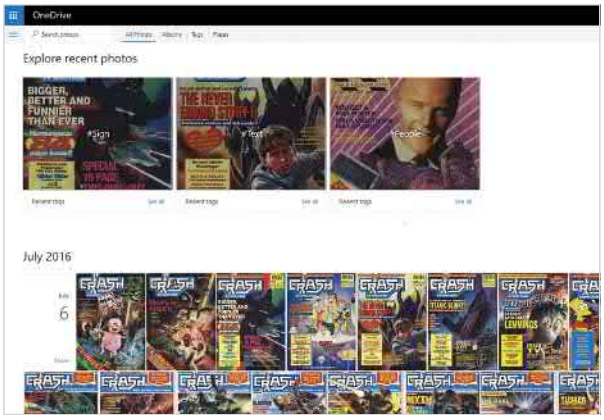
STEP 2 You can create folders within OneDrive by clicking on the New link followed by Folder. You'll then be able to click to enter the new folder and drag files into it, or use the Upload link. You'll also notice that you can create a new Word, Excel, PowerPoint or Plain Text Document, using Office Online.


OneDrive
Files
Recent
Photos
Shared
Recycle bin
PCs

STEP 3 Clicking on the Share link within the new folder will all you to create a link, email or social media post that will enable other people to access and view or edit the contents of the shared folder. You can manage permissions of the other users, as well as retrieve information regarding the contents and set alerts for any edited changes.


Crash Covers
Share 'Crash Covers'
Anyone with this link can view this item.
Get a link
Email
More
Facebook
Twitter
LinkedIn
Sina Weibo
Manage permissions

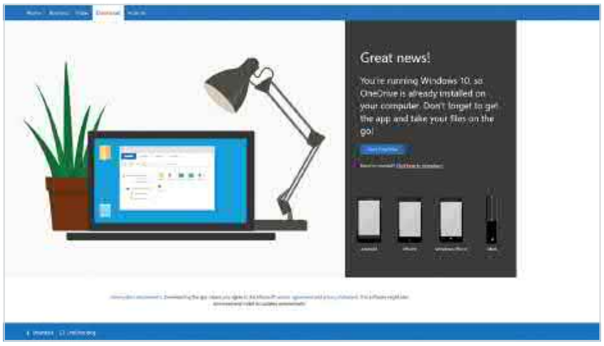
STEP 4 The Photos section allows you to view all the uploaded images in your OneDrive account according to date added and by certain tags, such as people, signs or text. This allows you to group and search for any images; handy when you have 1TB of photos to sift through.


OneDrive
Explore recent photos
#Sign
#Text
#People
July 2016

ONEDRIVE DESKTOP

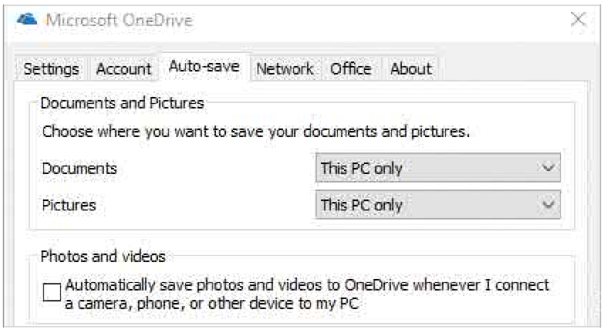
OneDrive is available as a desktop and mobile app. There are some great features on offer, especially with the desktop version.

STEP 1 Windows 8.1 and 10 users will automatically have the OneDrive installed with their system; just search for OneDrive after clicking the Windows Start button. Users of earlier Windows versions will need to go to www.onedrive.live.com/about/en-GB/download to get hold of a copy.


Great news!

You're running Windows 10, so OneDrive is already installed on your computer. Don't forget to get the app and take your files on the go!

STEP 2 Once installed, OneDrive will automatically set up a folder in your C:\Users\ area, with an icon in the taskbar. Opening the icon will display the amount of storage left on your OneDrive account, which folders you want to automatically backup from your PC to OneDrive, any collaborations with Office 2016/365 and the Fetch feature.


Microsoft OneDrive

Settings | Account | Auto-save | Network | Office | About

Documents and Pictures

Choose where you want to save your documents and pictures.

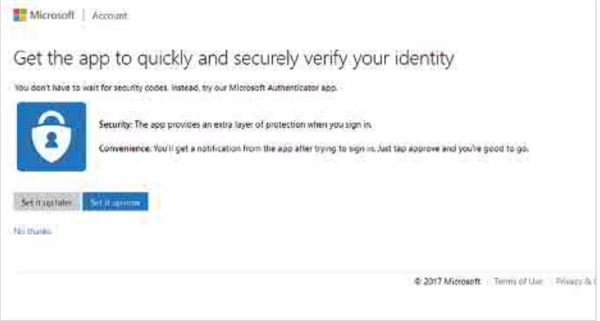
Documents: This PC only

Pictures: This PC only

Photos and videos

☐ Automatically save photos and videos to OneDrive whenever I connect a camera, phone, or other device to my PC

STEP 3 From the Settings tab, under General, within the OneDrive taskbar icon, you'll notice a tick box labelled 'Let me use OneDrive to fetch any of my files on this PC'. Tick this and follow the on-screen instructions to set up the PC and link the security between OneDrive and your computer.


Microsoft | Account

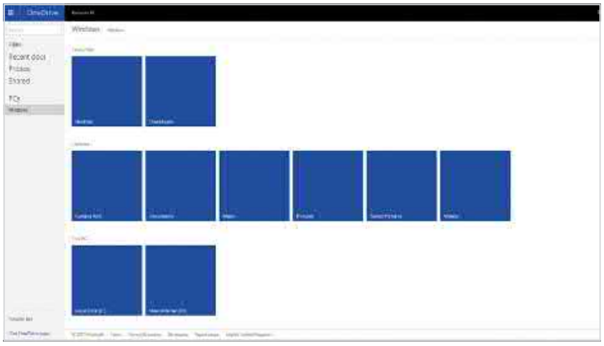
Get the app to quickly and securely verify your identity

You don't have to wait for security codes. Instead, try our Microsoft Authenticator app.

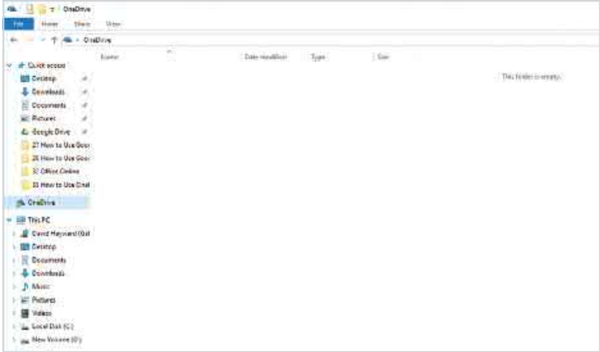
Security: The app provides an extra layer of protection when you sign in.

Convenience: You'll get a notification from the app after trying to sign in. Just tap approve and you're good to go.

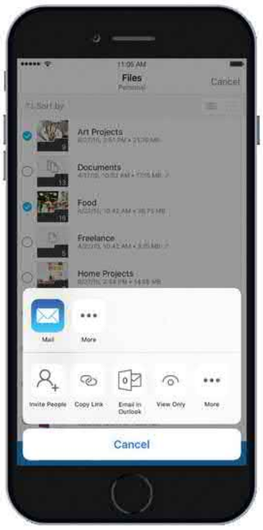
STEP 4 Once you've set your security, return to the web-based version of OneDrive and click on the PCs link in the sidebar. This should open a list of all the computers that have been authenticated and checked by OneDrive. Click on the computer you've just added and you'll be able to browse its hard drives and files.



STEP 5 The backup side of the OneDrive desktop app works in much the same way as Google's Drive. All you need to do is copy any files or folders into the OneDrive link in Windows Explorer and they will automatically be uploaded to the OneDrive cloud.



STEP 6 The Android and iOS apps work in the same manner, allowing you to backup any documents, photos and so on, as well as share content with others. You can even edit any existing Office documents with Office Mobile.



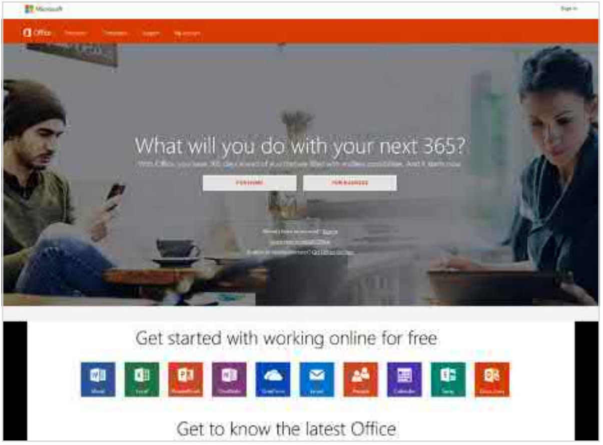
How to Use Office Online

If you're out of the office or home and need to edit an existing Office document, or create a new one, then Office Online gets you working for free. These versions of Word, Excel, PowerPoint and more are extremely handy, and all you need is a Microsoft account.

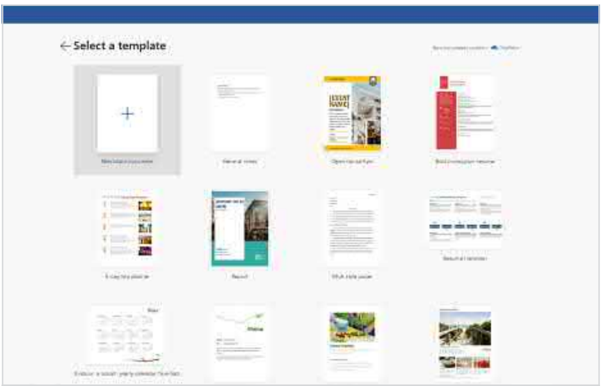
OFFICE FOR EVERYONE

Take a moment to sign up for a Microsoft account, then head over to office.live.com. You'll notice a range of Office icons, click one to get started.

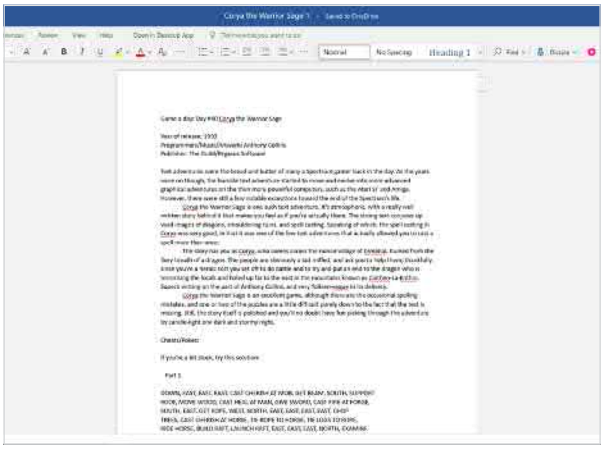
STEP 1 There are ten Office cloud options available from the office.live.com site. The familiar, and well used, Word, Excel and PowerPoint take the first three places, with OneNote, access to your OneDrive account, Mail, and so on after that. The last option is Docs.com, the Microsoft collaborative portal; similar to that of Google Docs.


What will you do with your next 365?
Get started with working online for free
Get to know the latest Office

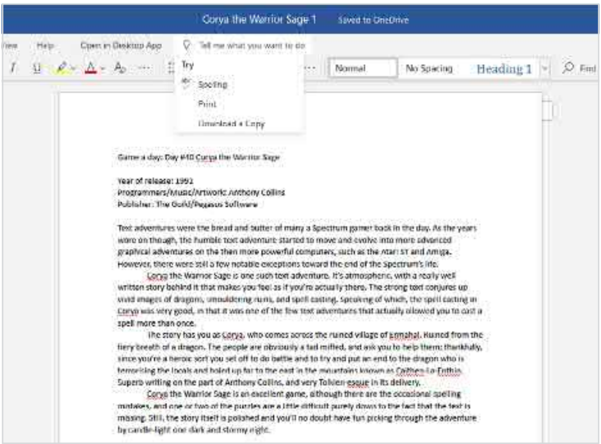
STEP 2 Clicking on each of the Office cloud icons will launch the product, asking you to sign in to your Microsoft account and linking the cloud app with your OneDrive account. There are numerous templates within each of the main Office apps from which to choose, or you can load up one already in your OneDrive account, or upload from a local source.



STEP 3 The layout of the individual Office cloud apps is similar to the latest version of Office, removing the necessity to re-learn how to use a particular app. Compatibility across older versions of Office is covered too, allowing you to load up content from Word 2003 and work with it in a Docx format.



STEP 4 In addition to the usual Ribbon menus, Office Online also incorporates the latest help features from Office 2016 and 365. There's a 'Tell me what you want to do' section in the top menu, which, when clicked reveals several suggestions to start you off.



Game a day: Day #40 Corya the Warrior Sage

Year of release: 1991
Programmers/Music/Artwork: Anthony Collins
Publisher: The Guild/Pegasus Software

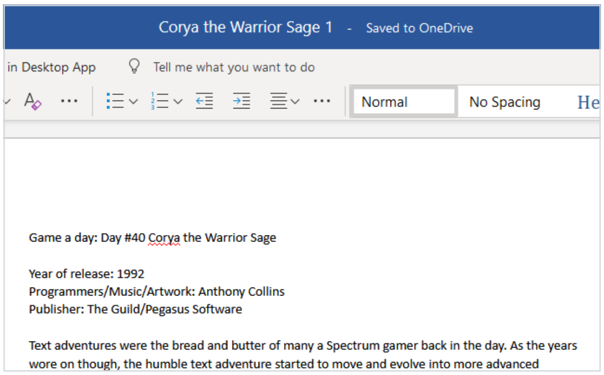
Text adventures were the bread and butter of many a Spectrum gamer back in the day. As the years wore on though, the humble text adventure started to move and evolve into more advanced graphical adventures on the then more powerful computers, such as the Atari ST and Amiga. However, there were still a few notable exceptions toward the end of the Spectrum's life.

Corya the Warrior Sage is one such text adventure. It's atmospheric, with a really well written story behind it that makes you feel as if you're actually there. The strong text conjures up vivid images of dragons, smouldering ruins, and spell casting. Speaking of which, the spell casting in Corya was very good, in that it was one of the few text adventures that actually allowed you to cast a spell more than once.

The story has you as Corya, who comes across the ruined village of Emmahal. Ruined from the fiery breath of a dragon. The people are obviously a tad miffed, and ask you to help them: thankfully, since you're a heroic sort you set off to do battle and to try and put an end to the dragon who is terrorising the locals and holed up far to the east in the mountains known as Cythen-La-Enthia. Superb writing on the part of Anthony Collins, and very Tolkien-esque in its delivery.

Corya the Warrior Sage is an excellent game, although there are the occasional spelling mistakes, and one or two of the puzzles are a little difficult purely down to the fact that the text is missing. Still, the story itself is polished and you'll no doubt have fun picking through the adventure by candle-light one dark and stormy night.

STEP 5 Clicking the ‘Open in Desktop App’ link launches the locally-installed version of 365, allowing you to continue working on the file from the desktop-installed app; as opposed to the online version. Handy if the file requires the use of a feature that isn’t available in the online version.

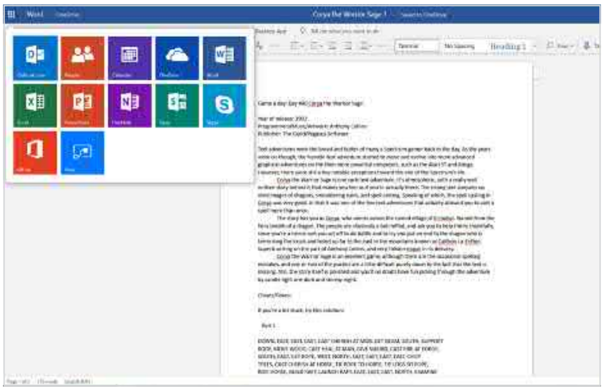

Corya the Warrior Sage 1 - Saved to OneDrive
in Desktop App
Tell me what you want to do
Normal
No Spacing
He

Game a day: Day #40 Corya the Warrior Sage

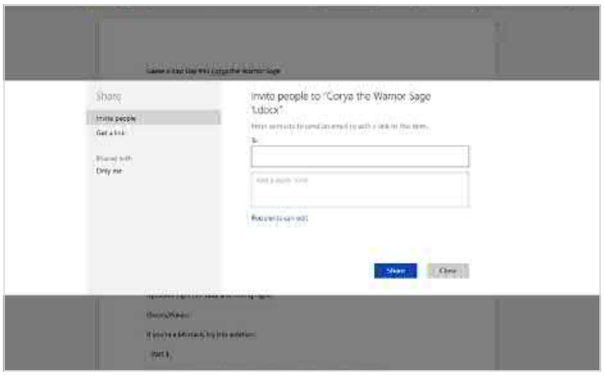
Year of release: 1992
Programmers/Music/Artwork: Anthony Collins
Publisher: The Guild/Pegasus Software

Text adventures were the bread and butter of many a Spectrum gamer back in the day. As the years wore on though, the humble text adventure started to move and evolve into more advanced

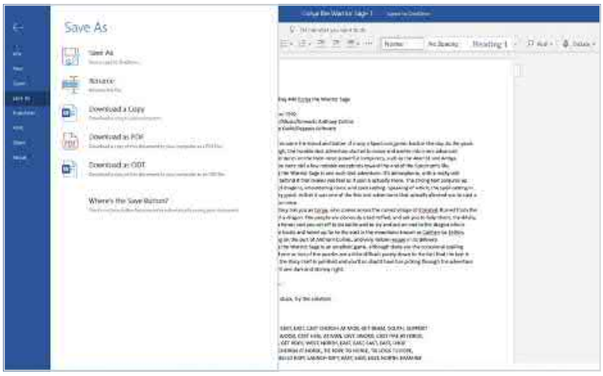
STEP 6 In all the Office Online apps, clicking the box of nine squares, in the upper left of the app screen, opens a quick-launch area from where you can access the other cloud apps; known as the App Launcher. This way, you don’t need to keep returning to the main office.live.com page to launch each app.



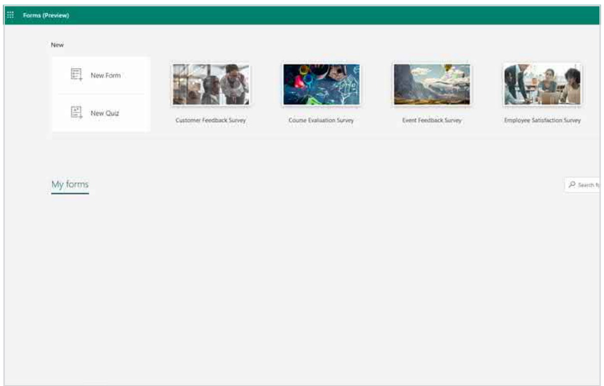
STEP 7 Sharing a file from within the Office Online apps is particularly easy. Just click on the Share button, in the upper right of the app’s interface, and you’ll be asked to enter the contacts of those you want to grant access. You can also generate a link for the file, and alter the permissions of each collaborator.


Share
Invite people
Get a link
Shared with
Only me
Invite people to 'Corya the Warrior Sage 1.docx'
Share
Close

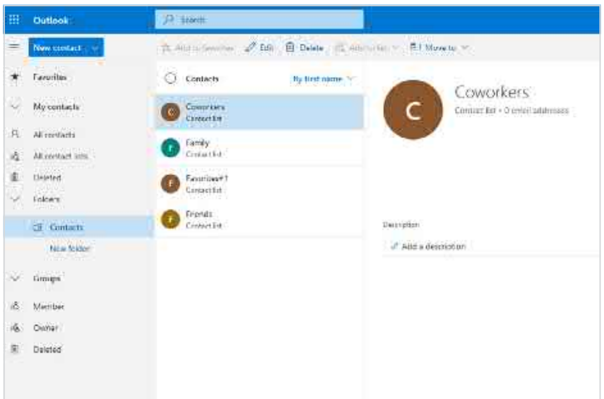
STEP 8 Any of the files you create within the Office Online cloud apps can be saved to the local system, or a USB stick if you’re working off a public computer. You can download and save them as the Office format document in which they’re created, or you can opt to save them as a PDF or an Open Document file, ODT.


Save As
Save As
Rename
Download a Copy
Download as PDF
Download as ODT
Where's the Save Button?

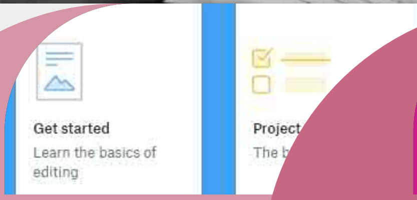
STEP 9 Forms is an interesting cloud app from the Office Online suite. Once signed in, you can create customer feedback forms, course evaluations, event registration and much more. There are loads of templates available, and you’re able to create your own, unique, forms and even quizzes.


Forms (Preview)
New
New Form
New Quiz
Customer Feedback Survey
Course Evaluation Survey
Event Feedback Survey
Employee Satisfaction Survey
My forms

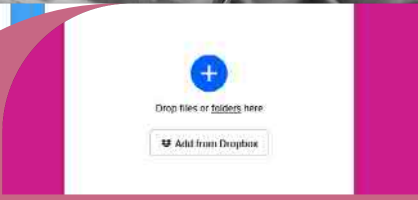
STEP 10 The People app links to your Microsoft Outlook account and displays your contacts therein. With it, you can create new contacts and connect to social networks such as Twitter, Google, LinkedIn, and so on.


Outlook
Search
New contact
Edit
Delete
Move to
Favorites
My contacts
All contacts
Deleted
Folders
Contacts
New folder
Groups
Member
Owner
Deleted
Contacts
By first name
Coworkers
Contact list
Family
Contact list
Favorites#1
Contact list
Friends
Contact list
Coworkers
Description
Add a description

72 **Dropbox Apps**
What are the Dropbox apps?


Get started
Learn the basics of editing
Project
The b

76 **How to use Dropbox Paper**
Learn how you can create content to share and work with others


Drop files or folders here
Add from Dropbox

77 **How to use Dropbox Transfer**
There's a lot more to Dropbox than simply storing work. Learn how to collaborate and share ideas.

Dropbox Cloud - In Focus

Dropbox is one of the go-to cloud storage services for consumers on the Internet.

It's easy to use, easy to manage and lets you instantly share content with anyone who has Internet access.

It's little wonder then that it's so popular, and it has a lot more to offer the home user.

72 What are Dropbox Cloud Apps?
74 Dropbox Files
75 Dropbox Photos
76 Dropbox Paper
77 Dropbox Transfer
78 How to Use Dropbox Storage
80 How to Use Dropbox Sharing

What are Dropbox Cloud Apps?

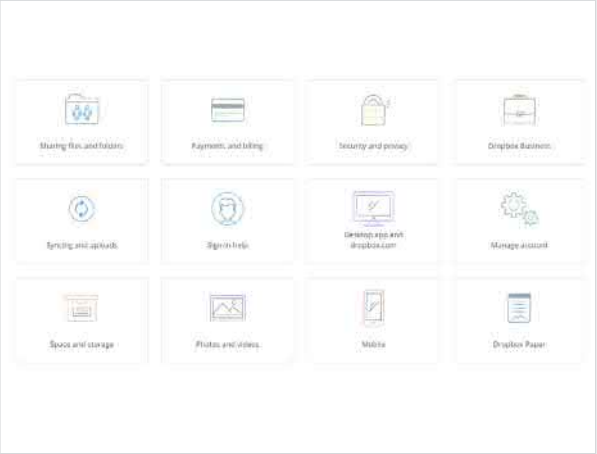
The San Francisco based Dropbox started life back in 2007 as a start-up company developed by a couple of MIT students. Since its release to the public in 2009, the company has grown to be one of the most used cloud services in the world.

BOXED CLOUDS

Dropbox has a worth somewhere in the region of $10 billion and a user base of over 500 million. Thanks to its newly implemented features and ease of use, it's not difficult to see why.

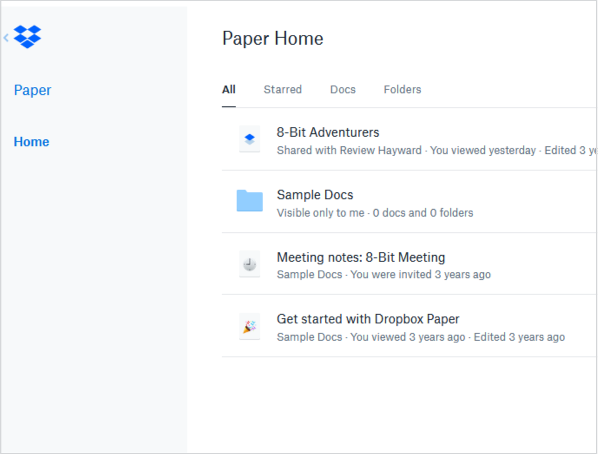
FILES

The most used feature of Dropbox, and its primary purpose, is the cloud storage functionality. You get 2GB free when signing up for an account, but, with various incentives, you're able to gain some more free space, up to 16GB is available through referrals.


Sharing files and folders
Payments and billing
Security and privacy
Dropbox Business
Syncing and uploads
Sign in help
Desktop app and dropbox.com
Manage account
Space and storage
Photos and videos
Mobile
Dropbox Paper

PAPER

Dropbox Paper is where you go to create collaborative documents. It's designed as a flexible workspace where you can write text, create task lists, or write code. You can embed images, audio and video, and then share the contents with others.


Paper
Home
Paper Home
All
Starred
Docs
Folders

8-Bit Adventurers
Shared with Review Hayward · You viewed yesterday · Edited 3 ye

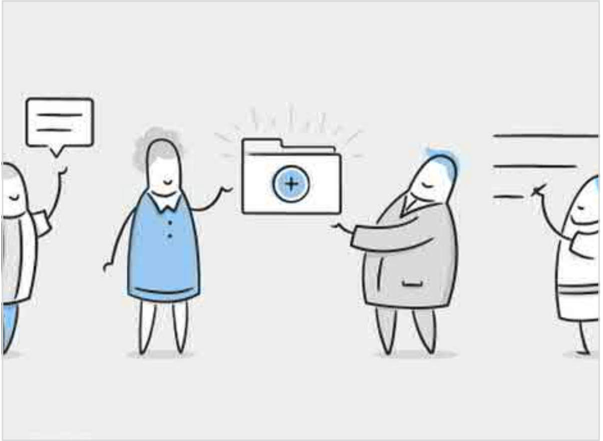
Sample Docs
Visible only to me · 0 docs and 0 folders

Meeting notes: 8-Bit Meeting
Sample Docs · You were invited 3 years ago

Get started with Dropbox Paper
Sample Docs · You viewed 3 years ago · Edited 3 years ago

SHARING

Sharing allows you to create shared files and folders, which you can invite and set up others to access. You can share content, collaborate in a single environment, create groups of team members and organise a shared resource more efficiently.



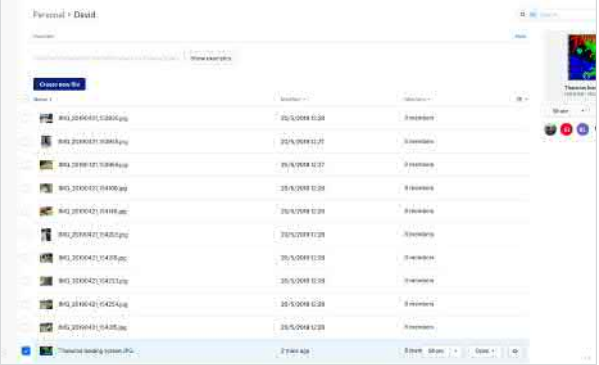
PHOTOS

Sadly, Dropbox ceased its Photos service a while back, a decision that left something of a bad taste in a lot of user's mouths. However, you're still able to view individual photos and images via the Files area; just not without the gallery options.

Thanatos loading screen.JPG
Share
Open

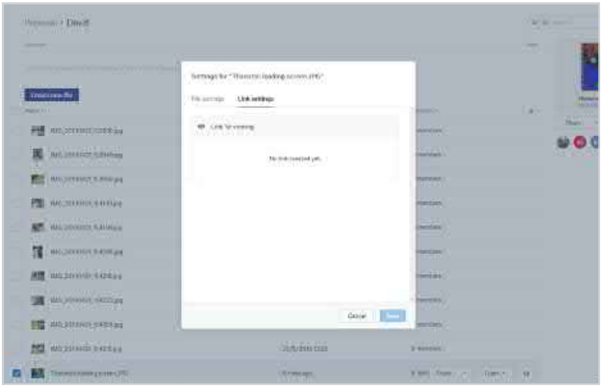
FOLDER SHARING

As with other cloud-based storage services, Dropbox's emphasis on sharing and creating shared folders is the backbone of the business. Considerable work has been done with Dropbox's new interface and controls to make it easy to create shared folders rapidly.



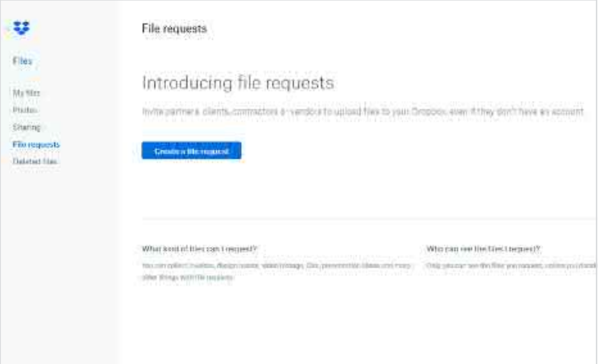
LINKS

Links allows you to create dynamic links to any files or folders within your Dropbox storage and share them with other users, including those who don't have a Dropbox account. Sharing content outside of a project, or sending to friends, family and clients, has never been easier.



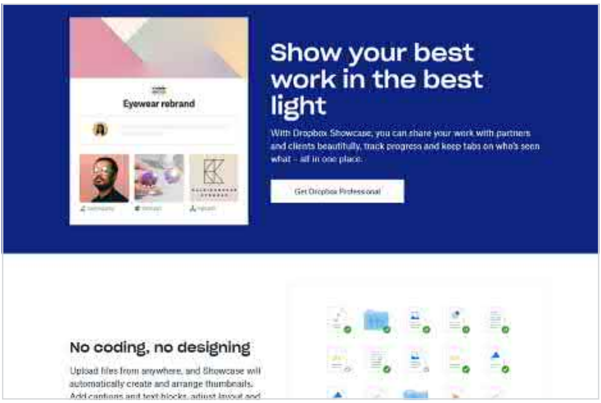
FILE REQUESTS

A relatively new Dropbox feature that creates invites which other people use to upload files to your Dropbox account; even those who don't have a Dropbox account. Teachers can send homework assignments to students, as well as family photos.



APPS

One of Dropbox's newest services, it allows you to share your work in a presentation, or web page look, that displays it in the best form possible. You're also able to track who has seen your Showcase, and Dropbox will automatically create the presentation for you.



Show your best work in the best light

With Dropbox Showcase, you can share your work with partners and clients beautifully, track progress and keep tabs on who's seen what – all in one place.

No coding, no designing

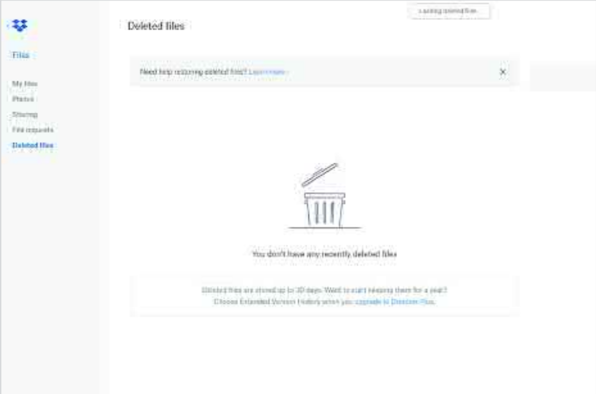
Upload files from anywhere, and Showcase will automatically create and arrange thumbnails.

SECURITY

Dropbox uses the latest AES 256-bit, military-grade encryption on its storage, along with SSL to transfer files to and from your computer and devices. The company previously used Amazon's S3 storage system, but now maintains its own server hardware.

RECOVERY

With Dropbox it's easy to recover any deleted files, up to 30-days old for Basic Plan users. Business users can also recover deleted files from further back and even get an extended version history and more options.



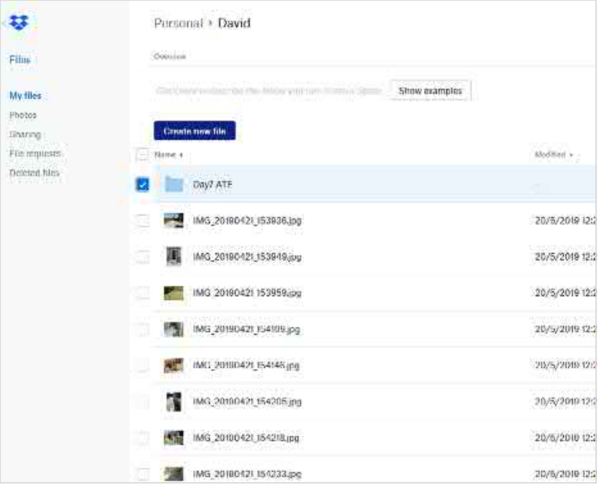
You don't have any recently deleted files

Dropbox Files

Dropbox Files is essentially the main area of the service. It's to where all your individual files and folders can be uploaded, or created. The files are arranged according to your preferences, and can be shared with ease.

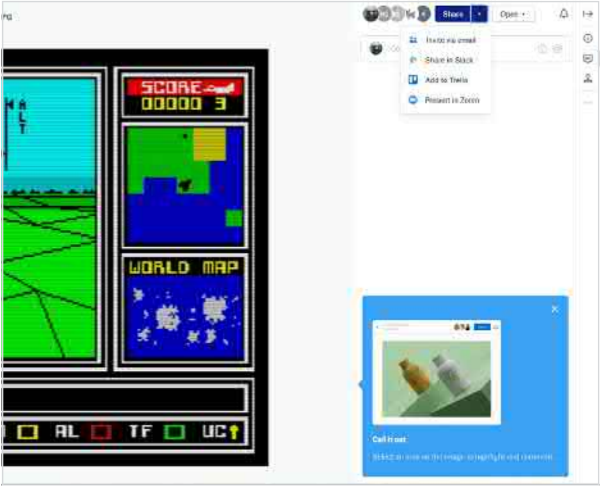
DRAG 'N DROP

Thanks to a recent update, Dropbox reintroduced the ability to drag and drop folders from your computer to the Files area in Dropbox. Naturally, you can use the desktop client, but if you, like us, dislike installing yet another third-party app in the background, the web interface now works much better.


Personal › David
Files
My files
Photos
Sharing
File requests
Deleted files
Show examples
Create new file
Name
Modified
Day7 ATF
IMG_20190421_153936.jpg
IMG_20190421_153949.jpg
IMG_20190421_153959.jpg
IMG_20190421_154109.jpg
IMG_20190421_154148.jpg
IMG_20190421_154205.jpg
IMG_20190421_154218.jpg
IMG_20190421_154233.jpg
20/5/2019

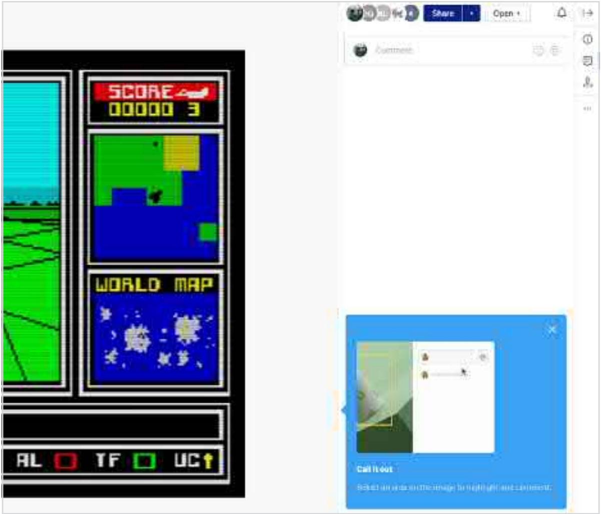
CONTACTS

Sharing content works in much the same way as the other cloud storage solutions. You enter a user's email address; if you've logged into Dropbox via Google, it uses your Google Contacts. From there, you're able to generate a link, have an automatic email sent, and change the user permissions.


Share
Open
Invite via email
Share in Slack
Add to Trello
Present in Zoom
SCORE
00000 3
WORLD MAP
AL
TF
UC
Call it out

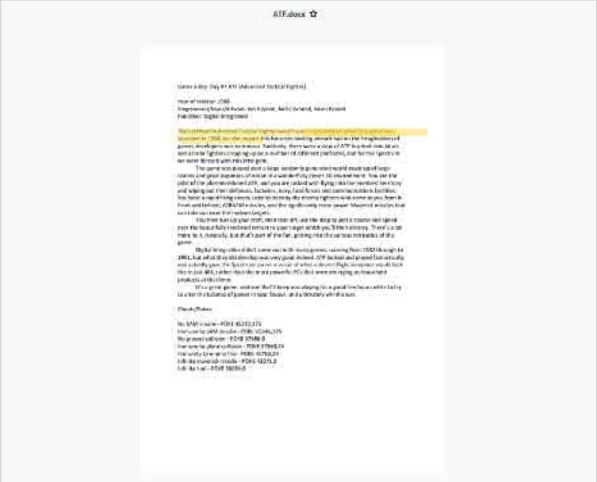
SHARING

Once you've uploaded files, images, or documents, for example, you can click them to view the contents. You're also able to share any of the folders and individual files with others by clicking on the content in question, followed by the Share button.


Share
Open
Comment
SCORE
00000 3
WORLD MAP
AL
TF
UC
Call it out

COMMENTING

You, or any of the other members of the share/team, can comment on any shared documents in Dropbox. You can highlight sections or the entire document, and add any comments you want. All comments by you and the team members are listed to the right of the document.



Dropbox Photos

Dropbox Photos is a shadow of its former self. Where it once had a ton of features, there's very little now; it was even removed from Dropbox at one point. However, it's still available, and here's what you can do with it.

PHOTOS Dropbox Photos can be found by navigating through the Files area, then clicking on the Photos link on the menu to the left of the main area. Note, if you're currently uploading content via the web interface, you won't be able to change locations within Dropbox without cancelling the upload.

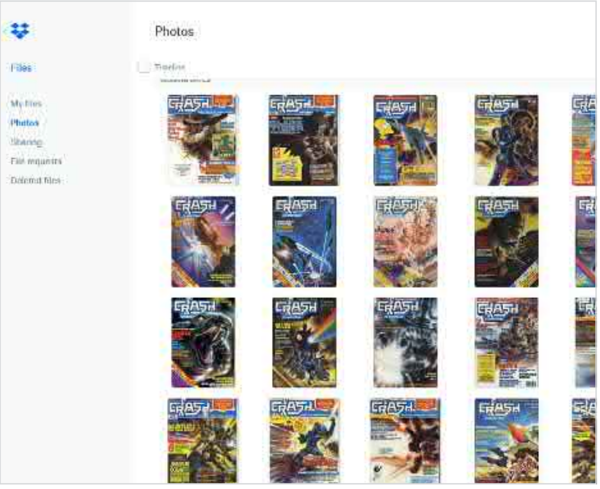
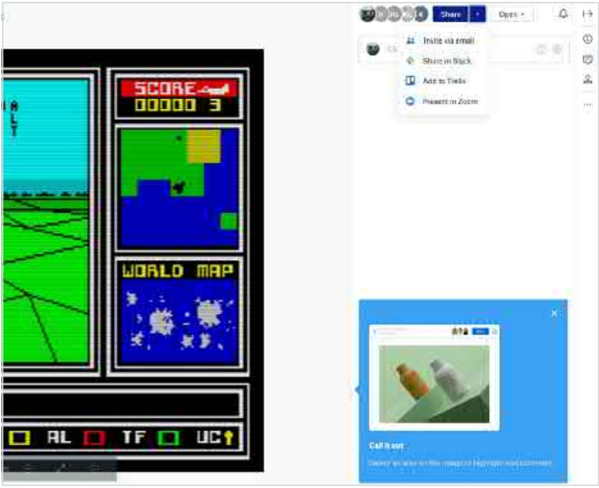
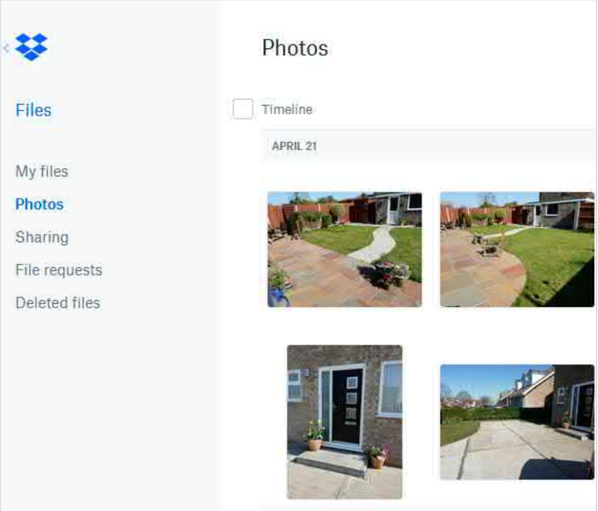

Photos
Files
My files
Photos
Sharing
File requests
Deleted files

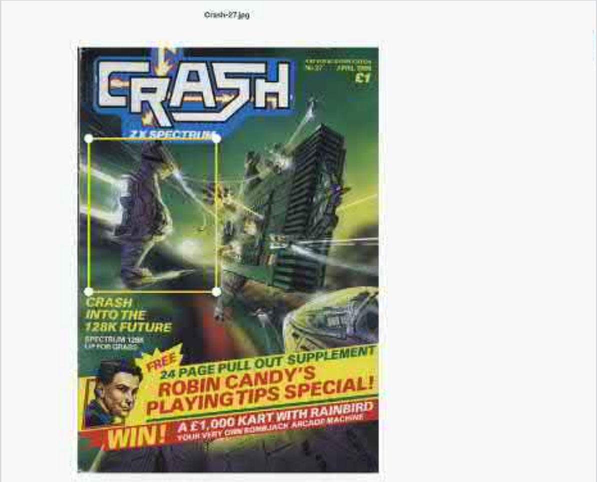
PHOTO SHARE As with any other part of Dropbox, you're able to share your photos by clicking on the photo, or ticking the box to block select multiple images, then click the Share button. From there you can enter the email address of the person you want to share with.


Share
Open
Invite via email
Share in Slack
Add to Trello
Present in Zoom
SCORE
00000 3
WORLD MAP
Call it out

TIMESTAMPS The Photos in your Dropbox storage are listed according to the timestamp on the image or photo itself, with the most recent date and date displayed first followed by older images as you scroll through the Photo area's timeline.


Photos
Files
Timeline
APRIL 21
My files
Photos
Sharing
File requests
Deleted files

TEAMWORK Click on any of the images, and you're able to use the mouse to draw a square around sections. This can be used to comment on any area of the image, and will appear as would a comment within a document, along with any comments from those you've shared the image with.

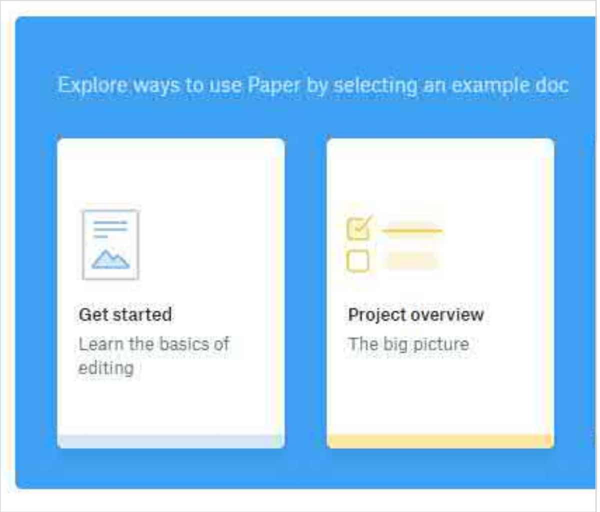

Crash-27.jpg
CRASH
ZX SPECTRUM
CRASH INTO THE 128K FUTURE
FREE 24 PAGE PULL OUT SUPPLEMENT
ROBIN CANDY'S PLAYING TIPS SPECIAL!
WIN! A £1,000 KART WITH RAINBIRD

Dropbox Paper

Dropbox Paper launched in 2015 and, to quote Dropbox itself, "is more than a doc, Dropbox Paper is a flexible workspace that brings people and ideas together". It's where you can create content to share and work with others.

TEMPLATES

You can create a new blank document from within Dropbox Paper or opt for one of three, already available, templates: Brainstorm, Project Overview and Meeting Notes. All documents are personal until you choose to share them.



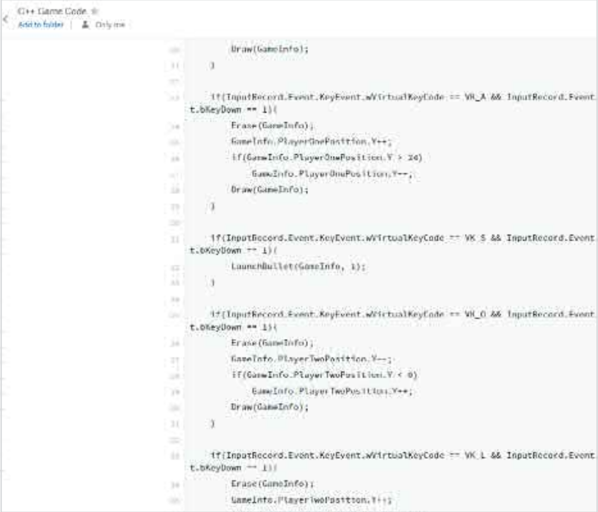
Explore ways to use Paper by selecting an example doc

Get started
Learn the basics of editing

Project overview
The big picture

AUTO LAYOUT

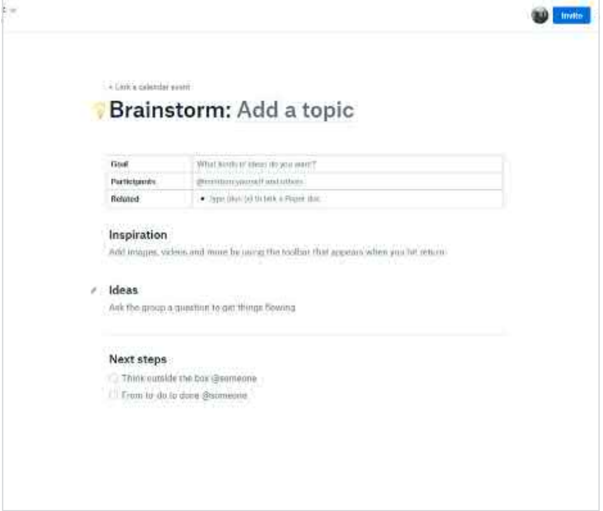
Depending on what content you enter, Dropbox Paper can automatically change its layout. For example, entering C++ code will start line numbers, colour coding for variables, and so on.



```
        Draw(GameInfo);
    }

    if(InputRecord.Event.KeyEvent.wVirtualKeyCode == VK_A && InputRecord.Event
t.bKeyDown == 1){
        Erase(GameInfo);
        GameInfo.PlayerOnePosition.Y++;
        if(GameInfo.PlayerOnePosition.Y > 24)
            GameInfo.PlayerOnePosition.Y--;
        Draw(GameInfo);
    }

    if(InputRecord.Event.KeyEvent.wVirtualKeyCode == VK_S && InputRecord.Event
t.bKeyDown == 1){
        LaunchBullet(GameInfo, 1);
    }

    if(InputRecord.Event.KeyEvent.wVirtualKeyCode == VK_O && InputRecord.Event
t.bKeyDown == 1){
        Erase(GameInfo);
        GameInfo.PlayerTwoPosition.Y--;
        if(GameInfo.PlayerTwoPosition.Y < 0)
            GameInfo.PlayerTwoPosition.Y++;
        Draw(GameInfo);
    }

    if(InputRecord.Event.KeyEvent.wVirtualKeyCode == VK_L && InputRecord.Event
t.bKeyDown == 1){
        Erase(GameInfo);
        GameInfo.PlayerTwoPosition.Y++;
```

TOPICS

The Templates are nicely laid out and easy to follow. Depending on the one you've launched, it's just a matter of editing the content that's already present and substituting it with your own words and ideas.



Brainstorm: Add a topic

Goal	What kinds of ideas do you want?
Participants	@mention yourself and others
Related	• Type (link) to link a Paper doc

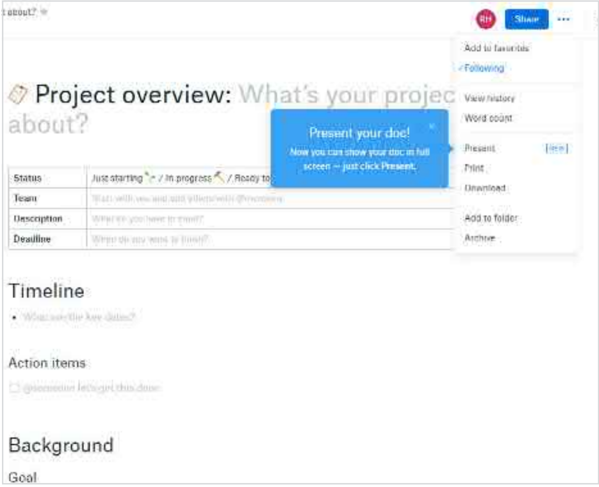
Inspiration
Add images, videos and more by using the toolbar that appears when you hit return

Ideas
Ask the group a question to get things flowing

Next steps
☐ Think outside the box @someone
☐ From to do to done @someone

DOCUMENT HISTORY

Dropbox Paper can: keep a history of any documents you, or others, have added, display the word count for individual documents, download them to your computer or device, and even open them in a Presentation mode.



Project overview: What's your projec about?

Present your doc!
Now you can show your doc in full screen – just click Present.

Status	Just starting / In progress / Ready to
Team	Start with you and add others with @mentions
Description	What do you have to finish?
Deadline	When do you want to finish?

Timeline
• What are the key dates?

Action items
☐ @someone let's get this done

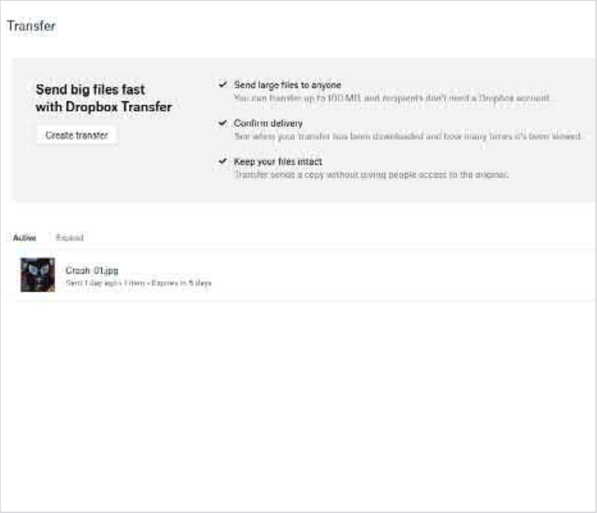
Background
Goal

Dropbox Transfer

Having come out of beta testing in November 2019, Dropbox's new service Transfer is still quite a fresh-faced service. It's a sharing tool, but in the same sense as the other collaboration examples that Dropbox offers.

START

You'll obtain Transfer from the root level of the main Dropbox menu, on the left side of the screen. If you can't see it, click the Dropbox icon to go to the root level where you can find and click on the Transfer link.



Transfer

Send big files fast with Dropbox Transfer

Create transfer

✓ Send large files to anyone
You can transfer up to 100 MB and recipients don't need a Dropbox account.

✓ Confirm delivery
See when your transfer has been downloaded and how many times it's been viewed.

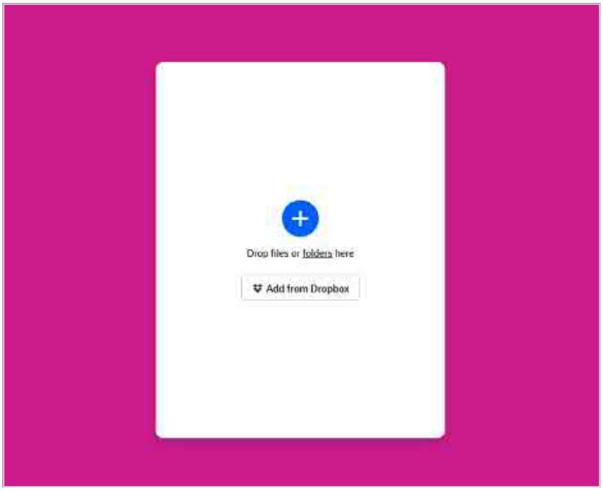
✓ Keep your files intact
Transfer sends a copy without giving people access to the original.

Active | Expired

Crash 01.jpg
Sent 1 day ago • 1 item • Expires in 5 days

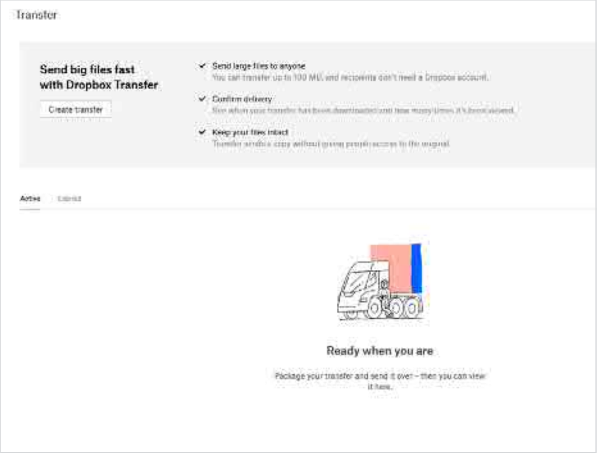
TRANSFER

You can start a Transfer by clicking on the Create Transfer button to the right of the main area. This opens a lurid pink screen where you can drop files of folders, or add them from existing content already stored within your Dropbox area. The design of the Transfer can be changed, but only for Pro users.



FILES

Transfer allows Dropbox users to send a copy of files. Recipients won't need a Dropbox account to receive Transfers, and alterations made by recipients won't change the original file. Dropbox says it's "designed for times when you need to turn over large collections of final files to clients and people outside your company."



Transfer

Send big files fast with Dropbox Transfer

Create transfer

✓ Send large files to anyone
You can transfer up to 100 MB and recipients don't need a Dropbox account.

✓ Confirm delivery
See when your transfer has been downloaded and how many times it's been viewed.

✓ Keep your files intact
Transfer sends a copy without giving people access to the original.

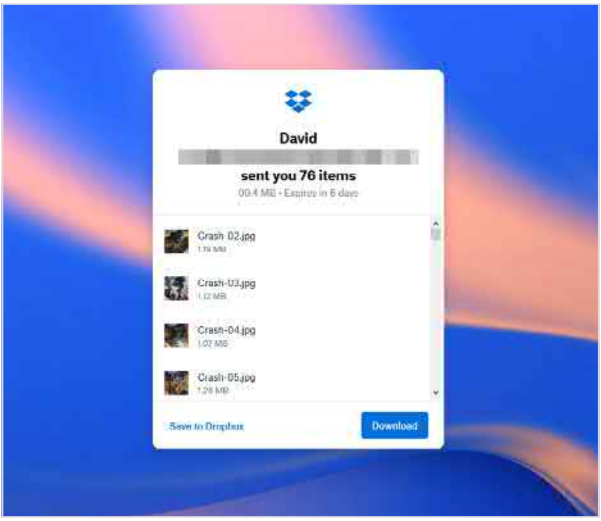
Active | Expired

Ready when you are

Package your transfer and send it over – then you can view it here.

LIMITS

You have 100MB limited with the free, personal version of Dropbox, but with the Pro version, you're able to transfer up to 100GB of files and folders. When you create your Transfer, you're given a link to a preview of what your recipients see when they view the content.



David

[redacted]

sent you 76 items

00.4 MB • Expires in 6 days

Crash 02.jpg
1.79 MB

Crash-03.jpg
1.12 MB

Crash-04.jpg
1.07 MB

Crash-05.jpg
1.28 MB

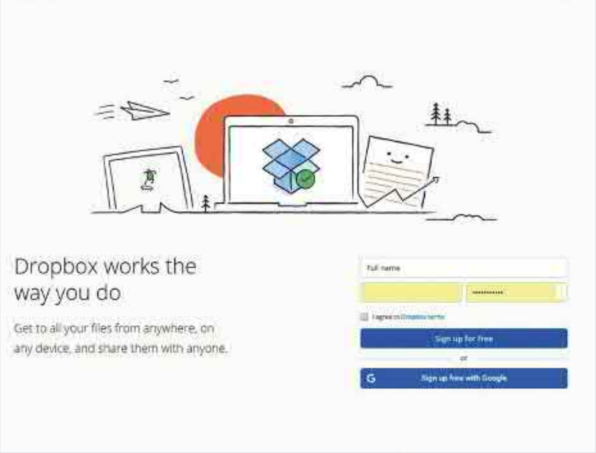
How to Use Dropbox Storage

Dropbox is an excellent cloud storage service. It's simple to use, looks good, works well and can be extremely effective and quick. Google's cloud-based services may encompass the entire user package but Dropbox is a far more lightweight option for any user type.

USING DROPBOX

Getting up and running with Dropbox's Basic Plan doesn't require much computing legwork. All you need to do is sign-in to www.dropbox.com.

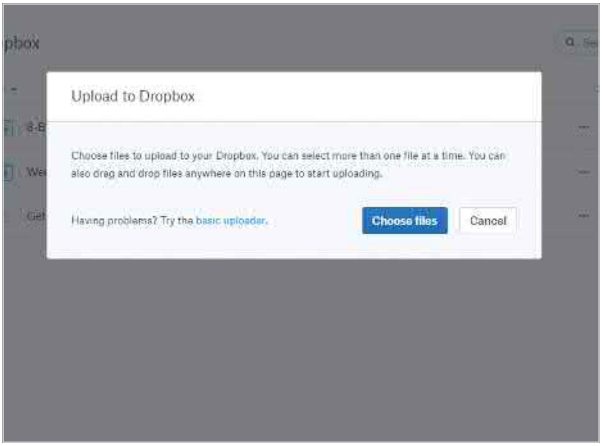
STEP 1 You can sign up with Dropbox either as a separate account or through your existing Google account. It doesn't matter which you opt for, as any alerts, notifications and so on are automatically emailed to the account you use.



Dropbox works the way you do

Get to all your files from anywhere, on any device, and share them with anyone.

STEP 2 Getting content into your Dropbox account can be done either by dragging and dropping the files and folders from your OS File Manager or by clicking on the blue coloured links to the right of the interface.



Upload to Dropbox

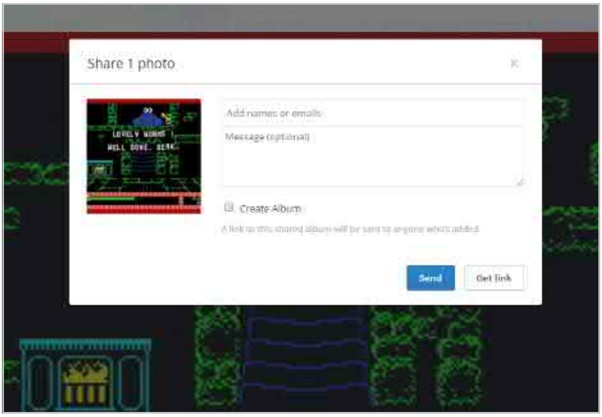
Choose files to upload to your Dropbox. You can select more than one file at a time. You can also drag and drop files anywhere on this page to start uploading.

Having problems? Try the basic uploader.

STEP 3 Once you've uploaded files, images or documents for example, you can click them to view the contents. You will also be able to share any of the folders and individual files with others, by clicking on the content in question followed by the Share button.

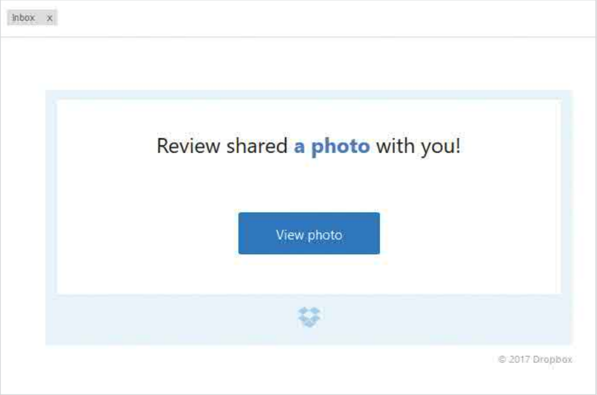
Share
LOVELY WORMS !
WELL DONE, BERK

STEP 4 Sharing content works in the same way as the other cloud storage solutions available. You enter a user's email address; if you've logged into Dropbox via Google then it uses your Google Contacts. From there you'll be able to generate a link, have an automatic email sent and change the user permissions.



Share 1 photo

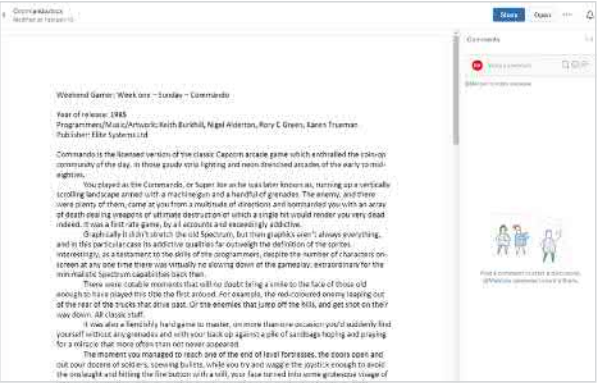
STEP 5 The shared user will receive an email in their inbox, detailing the name of the shared files or folders. All they will need to do is click on the Go To Folder, or View button to have their browser redirect them to the newly created share.



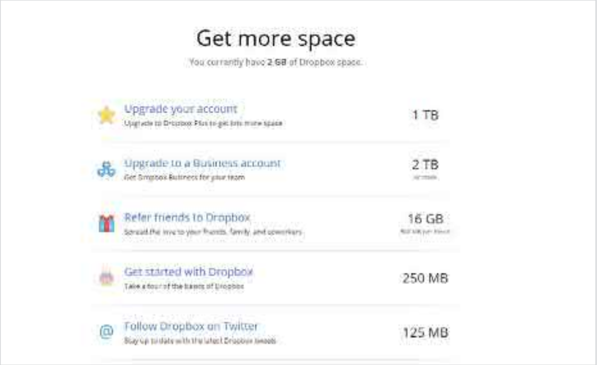
Review shared a photo with you!

© 2017 Dropbox

STEP 6 Once connected, the other users with access to the shared files can then make notes and comment on the documents that are currently present. You can highlight select areas of text to comment or you can create a document-wide comment, using the '@' symbol to mention individuals by name.



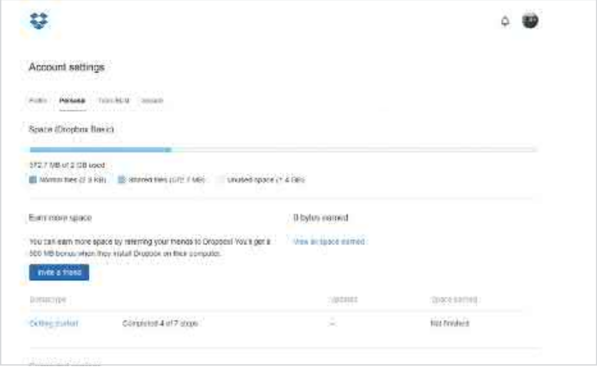
STEP 7 If you find yourself running low on space, head over to www.dropbox.com/getspace. This page will detail the amount of storage space you have and how you can earn more. Earning extra space doesn't always mean signing up and paying for the business account. There are some bonuses you can earn.



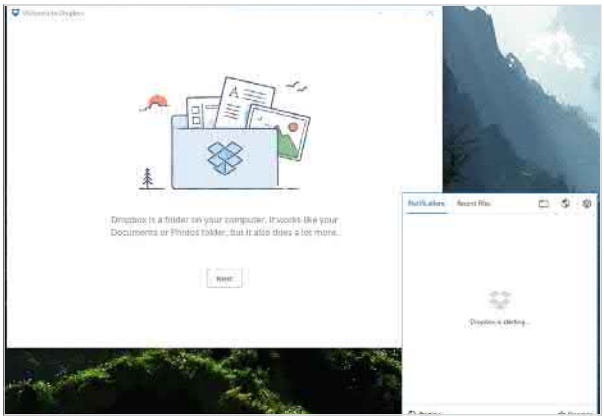
Get more space

Upgrade your account	1 TB
Upgrade to a Business account	2 TB
Refer friends to Dropbox	16 GB
Get started with Dropbox	250 MB
Follow Dropbox on Twitter	125 MB

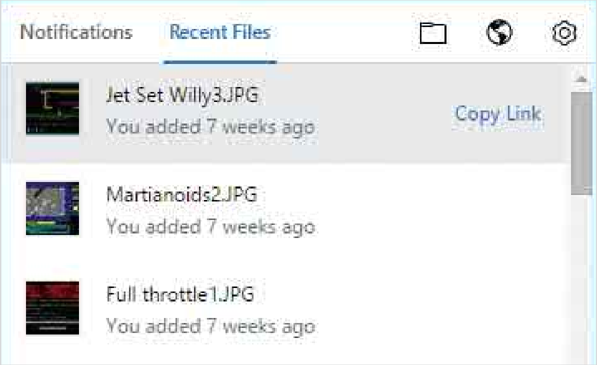
STEP 8 By completing seven simple steps, you're able to earn an extra 250MB of space. Follow Dropbox on Twitter and give the company some feedback and you can earn another 250MB. Finally, refer a friend to Dropbox and for each new member signed up thanks to you, Dropbox gives you 500MB.



STEP 9 The Dropbox desktop app works in much the same way as Google Drive and Microsoft's OneDrive. It creates a folder on your system, putting the shortcut in Windows Explorer, adding an icon in the taskbar and even a right-click context menu.



STEP 10 The Dropbox icon in the taskbar is able to display any notifications, the files within your area or shared folders and it can take you directly to the local Dropbox folder or the web-based portal. You can even upgrade and create links to individual files from within it.



Jet Set Willy3.JPG
You added 7 weeks ago

Martianoids2.JPG
You added 7 weeks ago

Full throttle1.JPG
You added 7 weeks ago

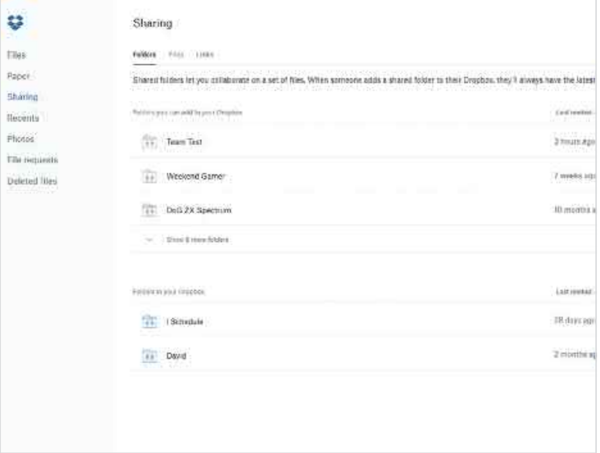
How to Use Dropbox Sharing

Cross organisation projects and sharing files and folders with friends and family members is one of Dropbox's key features. It's something that Dropbox has worked on to make as easy as possible; removing the previous Team link and focusing instead on consumer-level sharing.

TEAM CLOUDS

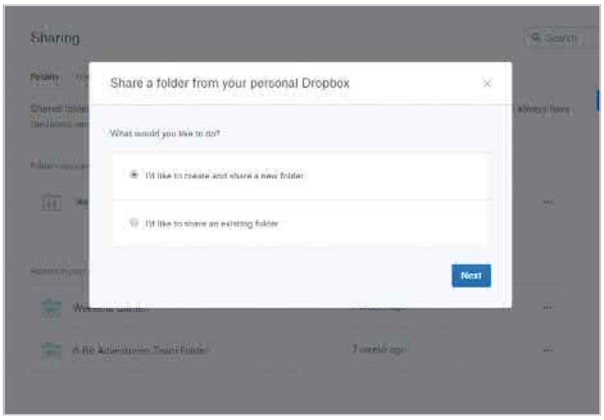
Using Dropbox Sharing is remarkably easy. It's quick to set up, simple to understand and implement and yet can be quite powerful when used with other members.

STEP 1 To get started with Dropbox Sharing, locate and click on the Sharing link in the Dropbox interface sidebar. This will launch the currently shared files and folders set up page, with some brief but handy feature information.


Sharing
Files
Paper
Sharing
Recents
Photos
File requests
Deleted files
Folders
Files
Links
Team Test
Weekend Gamer
DoG 2X Spectrum
I Schedule
David

Shared folders let you collaborate on a set of files. When someone adds a shared folder to their Dropbox, they'll always have the latest

STEP 2 Let's start by creating a new folder that will be shared with others. Click the blue button to the right of the screen labelled Create Shared Folder. This will open a pop-up box offering two options, 'Create and share a new folder' and 'Share an existing folder'. For now, make sure the first option is highlighted and select Next.

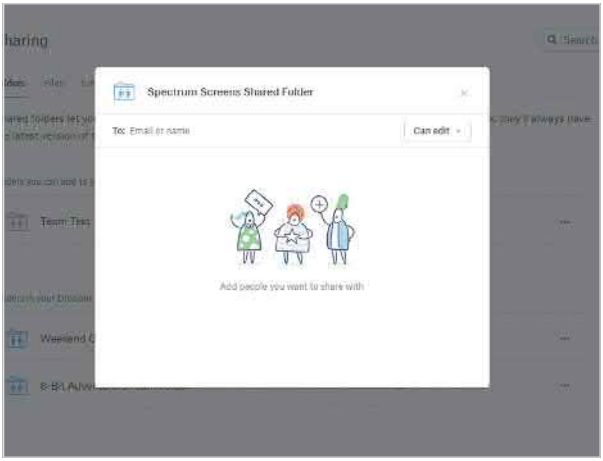

Sharing
Search
Share a folder from your personal Dropbox
Next

What would you like to do?

● I'd like to create and share a new folder

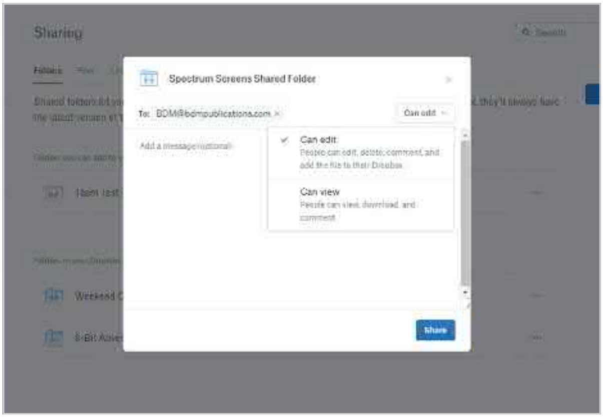
○ I'd like to share an existing folder

STEP 3 You'll need to name the new folder to begin with. Remember to give it a logical name, as others who you share with will be able to identify it when the email comes through telling them that they're now a part of a shared folder group.


Sharing
Search
Spectrum Screens Shared Folder
Can edit
Add people you want to share with
Team Test

To: Email or name

STEP 4 Under the folder name, enter the email addresses of the people who you want to share the folder with; you can also just enter their names if you've signed up for Dropbox via Google, as it will use your Google account address book. You can also click the Can Edit button to the side and detail the user's access levels.

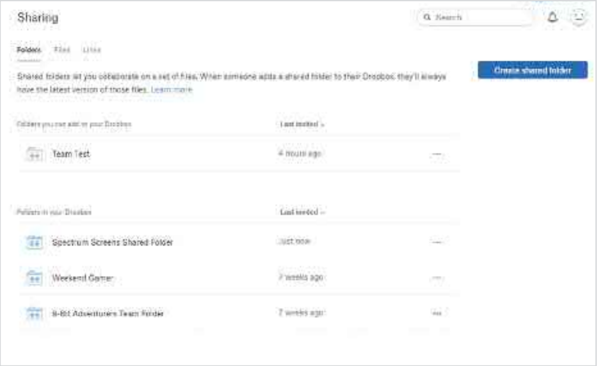

Sharing
Search
Folders
Spectrum Screens Shared Folder
Can edit
Add a message (optional)
Share

To: BDM@bdmpublications.com

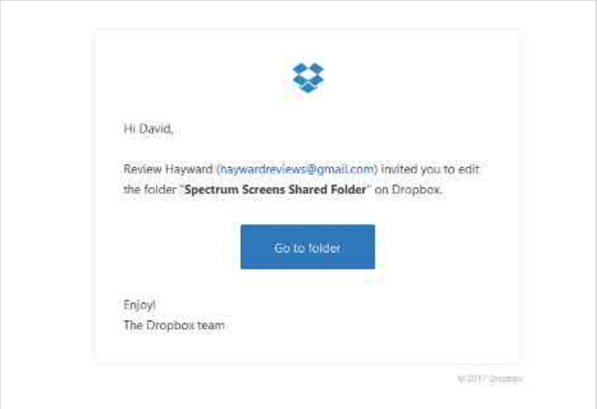
✓ Can edit
People can edit, delete, comment and add the file to their Dropbox

Can view
People can view, download and comment

STEP 5 If you want you can enter a message in the lower section of the folder creation window; it's not necessary but courteous to those you're inviting to share it with. When you're done, click the Share button to create the folder and automatically let Dropbox send off the email invitations.


Sharing
Search
Folders
Files
Links
Create shared folder
Team Test
Spectrum Screens Shared Folder
Weekend Gamer
8-Bit Adventurers Team Folder

STEP 6 Members that you've chosen to be a part of the shared folder will now receive their invitation email. It will state who created the share and its name and add a button for them to click to be redirected in a new browser tab to the shared folder location.



Hi David,

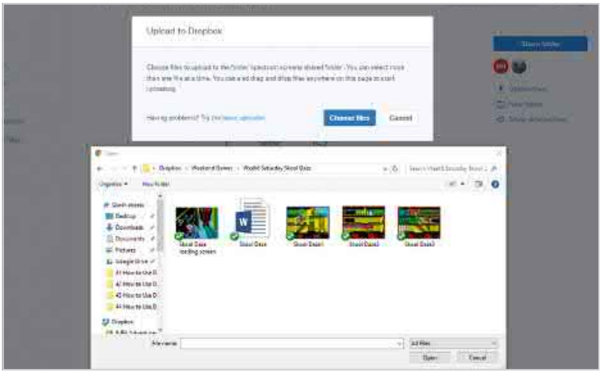
Review Hayward (haywardreviews@gmail.com) invited you to edit the folder "**Spectrum Screens Shared Folder**" on Dropbox.

Go to folder

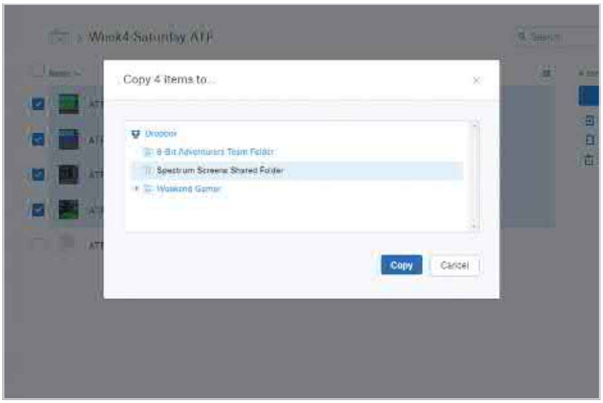
Enjoy!
The Dropbox team

© 2017 Dropbox

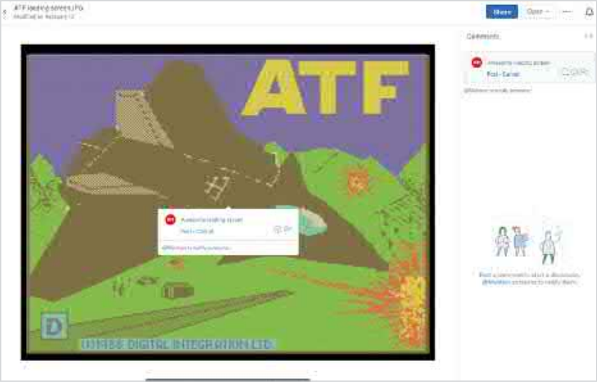
STEP 7 Now everyone has access, you can begin to populate the new folder. You can drag and drop, or use the Upload files option to the right of the screen to add content. Likewise, the other members of the shared folder can do the same, although not those who have only been selected with View access levels.


Upload to Dropbox
Choose files
Cancel
Open
Cancel

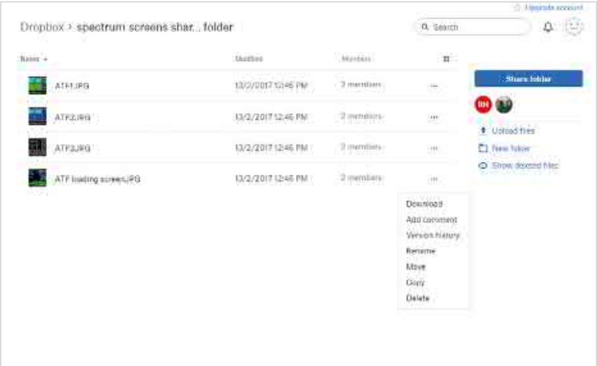
STEP 8 If you have any existing files or folders in your Dropbox store, you can tick the boxes next to them followed by the Copy link to the right. Then, highlight the newly created shared folder and the Copy button to transfer the selected content to the shared folder.

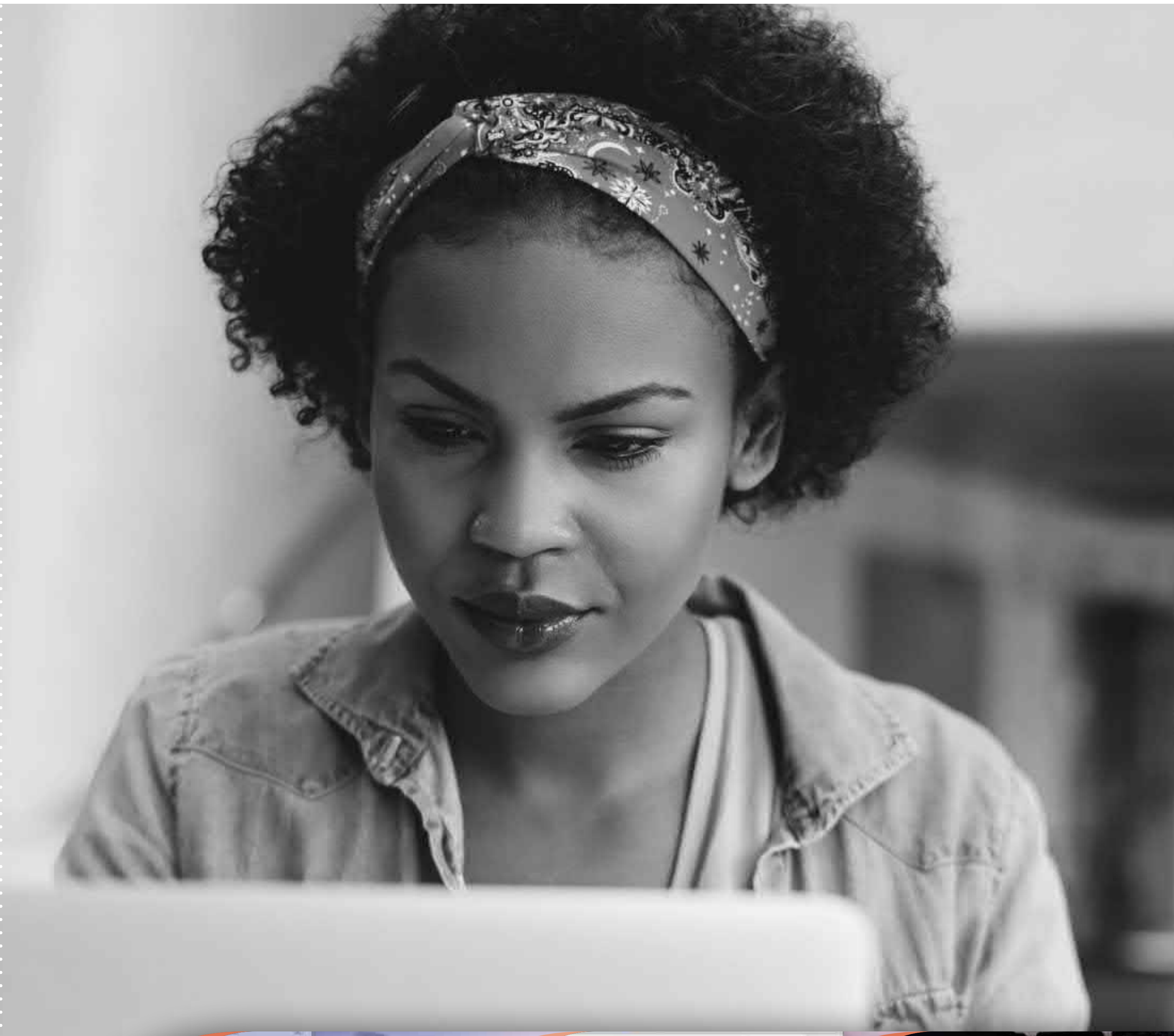

Week4 Saturday ATF
Search
Copy 4 items to...
Dropbox
8-Bit Adventurers Team Folder
Spectrum Screens Shared Folder
Weekend Gamer
Copy
Cancel

STEP 9 Obviously the great benefit of sharing files and folders is that you and your colleagues are able to collaborate on the content. For example, click on the files you've copied into your new shared folder. To the right you can enter Comments for sections of words, or even on images.

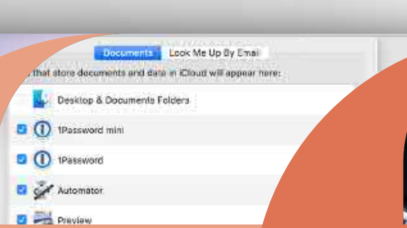

ATF
Comments

STEP 10 To assist those who frequently view and edit files within a shared folder, you can click the three full stops to the right of a file and then you're able to view the file's Version History. This will give you a breakdown of what edits, comments and alterations have been applied since the file was uploaded to the folder.


Dropbox › spectrum screens shar... folder
Search
Share folder
Upload files
New folder
Show deleted files
ATF1.JPG
ATF2.JPG
ATF3.JPG
ATF loading screen.JPG
Download
Add comment
Version history
Rename
Move
Copy
Delete



Select Startup Disk
Recents
Documents
Desktop
Downloads
Home
Computer
AirDrop
Network
iCloud Drive
Applications
Utilities
Recent Folders


Documents
Look Me Up By Email
Desktop & Documents Folders
1Password mini
1Password
Automator
Preview

that store documents and data in iCloud will appear here:

84 **Apple's iCloud**
Discover how to store your files with the iCloud service.

90 **iCloud's Desktop**
Learn how to access your documents across your devices.

91 **The Future of iCloud**
What have Apple got planned for the future of iCloud.

Apple iCloud - In Focus

The Cupertino company has invested countless millions into bringing one of the best cloud-based services to the consumer. Apple's cloud technology and integration, with its operating systems and devices, is really quite remarkable.

Here's how to use some of the great features available to Apple owners.

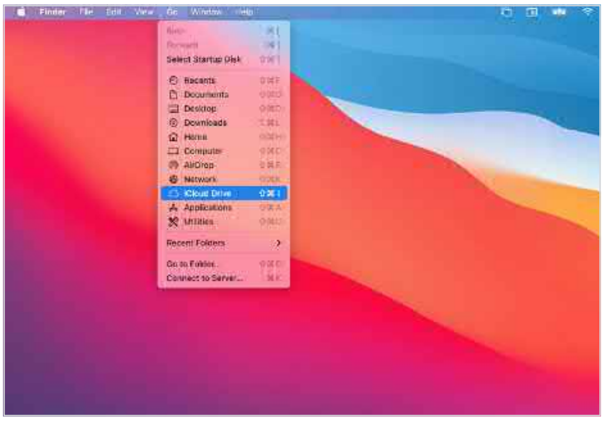
84 The iCloud Service for Storage & Syncing
90 iCloud Desktop Documents & Folders
91 The Future of iCloud
92 Cloud Technologies: Artificial Intelligence

The iCloud Service for Storage & Syncing

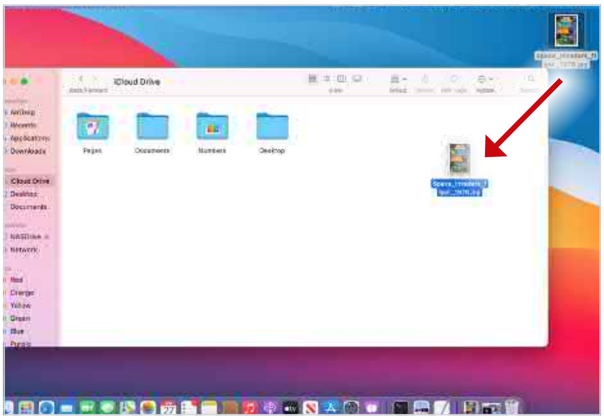
iCloud is Apple's foothold in the modern cloud services market. It's robust, features excellent georedundancy (meaning if an iCloud server goes down, there's another somewhere in the world to pick up) and is more than capable to handle the average user's needs.

STORING YOUR DOCUMENTS IN iCLOUD

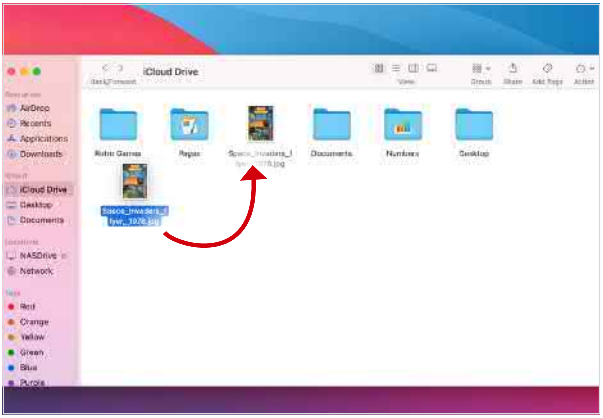
STEP 1 Click on your desktop to open Finder, then open iCloud Drive from the Go menu. You may need to log into iCloud using your Apple ID. You'll see a Finder window showing the contents of your iCloud drive folder, with folders for some apps that store output in iCloud.


Finder
File
Edit
View
Go
Window
Help
Select Startup Disk
Recents
Documents
Desktop
Downloads
Home
Computer
AirDrop
Network
iCloud Drive
Applications
Utilities
Recent Folders
Go to Folder...
Connect to Server...

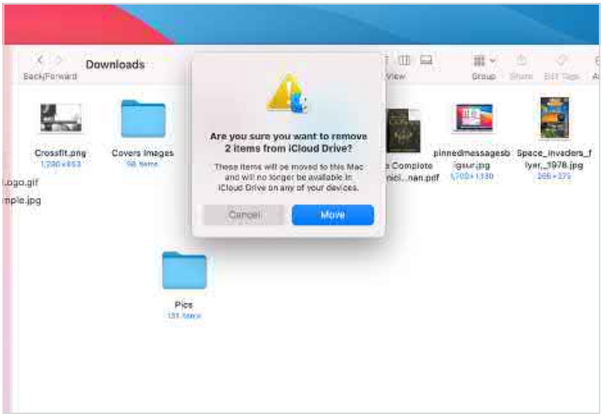
STEP 2 To save files of any type into your iCloud Drive folder, simply drag them from their current location (in this screenshot, that's the desktop) and drop them in the open iCloud window. They are now stored remotely and accessible from any connected Apple device.


iCloud Drive
Pages
Documents
Numbers
Desktop

STEP 3 You can organise your iCloud folder like any other folder, including creating new folders within it. To move files into a new folder in your iCloud Drive, just drag and drop them to where you want them, just like you would with any other Finder folder.


iCloud Drive
AirDrop
Recents
Applications
Downloads
iCloud Drive
Desktop
Documents
NASDrive
Network
Red
Orange
Yellow
Green
Blue
Purple
Retro Games
Pages
Documents
Numbers
Desktop

STEP 4 To move files out of iCloud storage and back to your hard drive, drag them out of the iCloud folder and onto your desktop or into a folder that isn't in your iCloud Drive. Confirm the move when you're asked to and the files are removed from your iCloud storage.

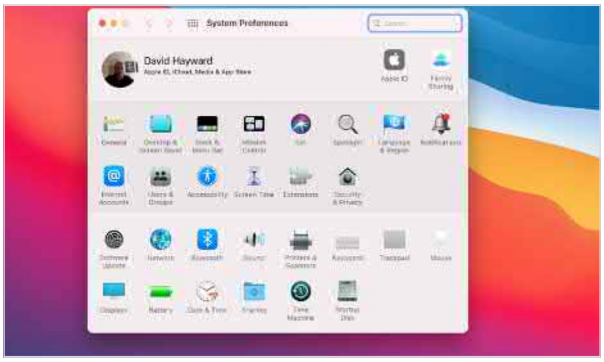

Are you sure you want to remove 2 items from iCloud Drive?

These items will be moved to this Mac and will no longer be available in iCloud Drive on any of your devices.

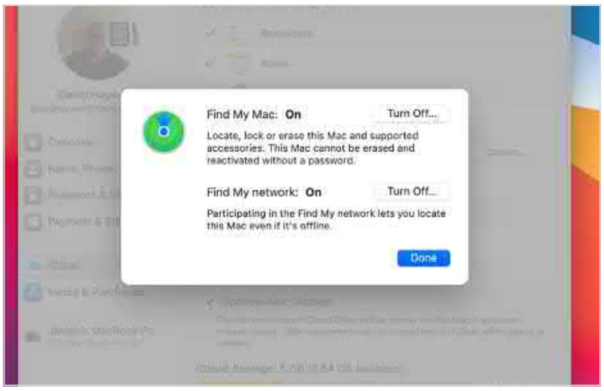
Downloads
Crossfit.png
Covers Images
Pics
Cancel
Move

FIND MY MAC

STEP 1 Find My Mac is an excellent feature that could help you find a lost or stolen Mac, as long as it has recently been connected to the Internet. First of all, you must set it up. Open System Preferences, either from the Apple menu, Dock or Launchpad.


System Preferences
David Hayward
Apple ID, iCloud, Media & App Store
Apple ID
Family Sharing

STEP 2 Click the Apple ID preference pane and then the iCloud option in the left-hand toolbar. If you aren't already signed in, do so now. In the right-hand column, make sure the Find My Mac option is ticked. Click Options and make sure Find My Mac and Find My Network are both on.

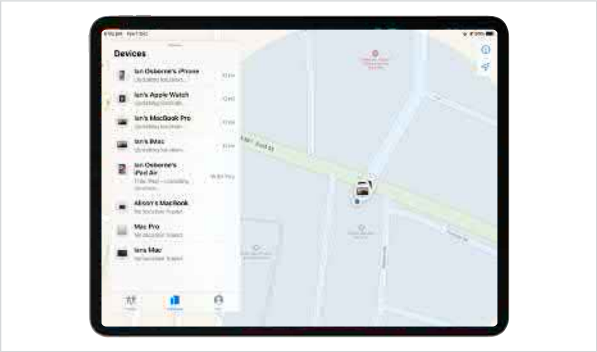


Find My Mac: On Turn Off...
Locate, lock or erase this Mac and supported accessories. This Mac cannot be erased and reactivated without a password.

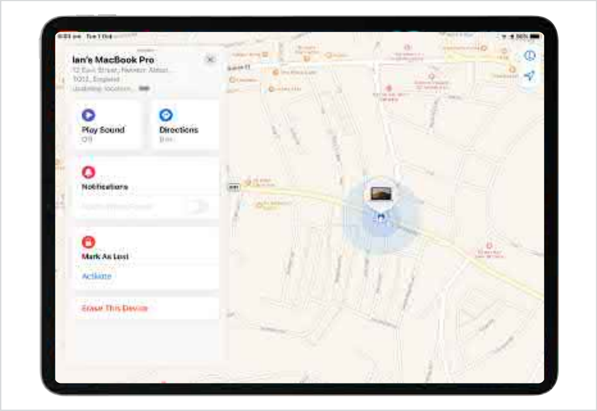
Find My network: On Turn Off...
Participating in the Find My network lets you locate this Mac even if it's offline.

STEP 3 To locate a stolen or mislaid Mac using an iPhone or iPad, open the Find My app, or Find My iPhone if you're using iOS 12 or earlier. Again, you need to be signed into iCloud, with the same ID as the Mac you're trying to locate. You can use this app to find other types of Apple devices too.

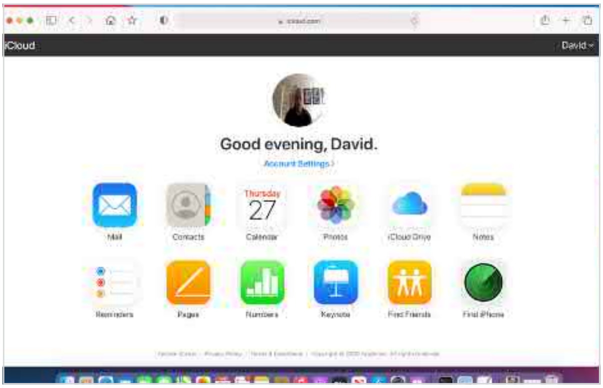
STEP 4 Tap the Devices icon in the bottom left corner and you're shown a list of Apple devices signed into the same Apple ID as the device you're using. The list is shown down the left-hand side. Tap an item to show its current location on the map.


Devices
Ian Osborne's iPhone
Ian's Apple Watch
Ian's MacBook Pro
Ian's iMac
Ian Osborne's iPad Air
Alison's MacBook
Mac Pro
Ian's Mac

STEP 5 Tap a device on the map for more options. Tapping a device that can't be located in the sidebar also gives you these options. You can make the device play a sound, lock it or wipe it remotely. If it's not located, you can get a notification next time it goes online.

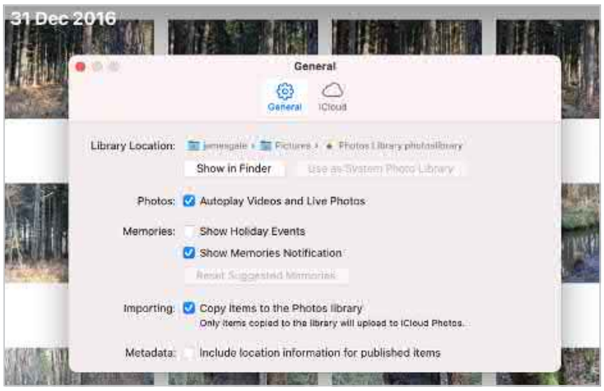

Ian's MacBook Pro
Play Sound
Directions
Notifications
Mark As Lost
Activate
Erase This Device

STEP 6 You can also use Find My Mac from any device with a web browser and an Internet connection. Just go to www.icloud.com and sign in with your Apple ID. On the menu screen click on Find My iPhone and then use it just like you do on your iOS devices.


iCloud
David
Good evening, David.
Account Settings
Mail
Contacts
Thursday
27
Calendar
Photos
iCloud Drive
Notes
Reminders
Pages
Numbers
Keynote
Find Friends
Find iPhone

iCLOUD PHOTOS

STEP 1 To enable iCloud Photo Library on your Mac, first of all, open the Photos app and in the Photos pull-down menu, select Preferences as shown, to get the Preferences window.



Library Location: jamesgale › Pictures › Photos Library.photoslibrary

Photos: ☑ Autoplay Videos and Live Photos

Memories: ☐ Show Holiday Events

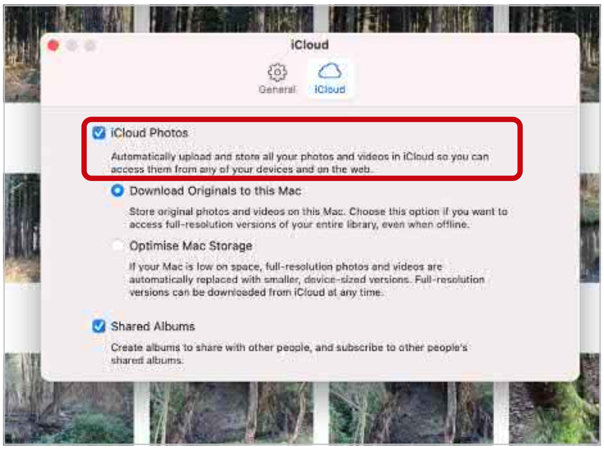
☑ Show Memories Notification

Importing: ☑ Copy items to the Photos library

Only items copied to the library will upload to iCloud Photos.

Metadata: ☐ Include location information for published items

STEP 2 In the Preferences window, click on iCloud and then check the box labelled iCloud Photos. Your photos are uploaded to your iCloud. This may take some time.



☑ iCloud Photos

Automatically upload and store all your photos and videos in iCloud so you can access them from any of your devices and on the web.

● Download Originals to this Mac

Store original photos and videos on this Mac. Choose this option if you want to access full-resolution versions of your entire library, even when offline.

○ Optimise Mac Storage

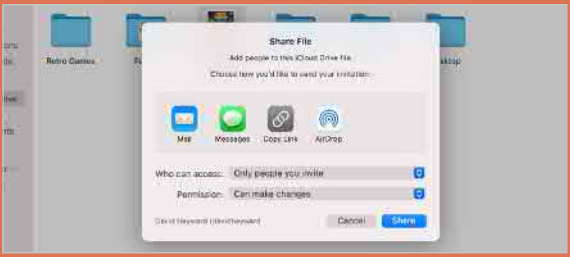
If your Mac is low on space, full-resolution photos and videos are automatically replaced with smaller, device-sized versions. Full-resolution versions can be downloaded from iCloud at any time.

☑ Shared Albums

Create albums to share with other people, and subscribe to other people's shared albums.

SHARING AN iCLOUD FILE

You can share a file in your iCloud Drive just by sending someone a link. Right or Ctrl-Click on the file and select Share › Add People. From the window that pops up, choose a means of sending the link. You can select whether the people to whom you send the link can make changes to the file, or only view it.



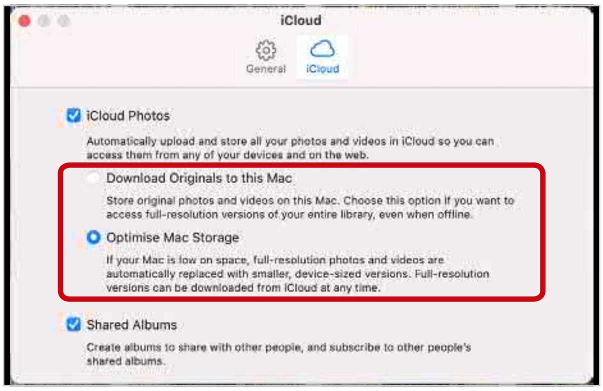
Add people to this iCloud Drive file.

Choose how you'd like to send your invitation:

Who can access: Only people you invite

Permission: Can make changes

STEP 3 You can choose between 'Download Originals to this Mac', to keep a backup copy of your library on your Mac, and 'Optimise Mac Storage' to leave it all on the cloud.



☑ iCloud Photos

Automatically upload and store all your photos and videos in iCloud so you can access them from any of your devices and on the web.

○ Download Originals to this Mac

Store original photos and videos on this Mac. Choose this option if you want to access full-resolution versions of your entire library, even when offline.

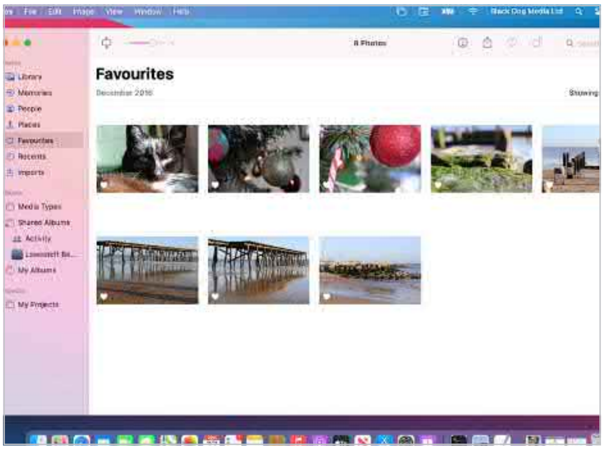
● Optimise Mac Storage

If your Mac is low on space, full-resolution photos and videos are automatically replaced with smaller, device-sized versions. Full-resolution versions can be downloaded from iCloud at any time.

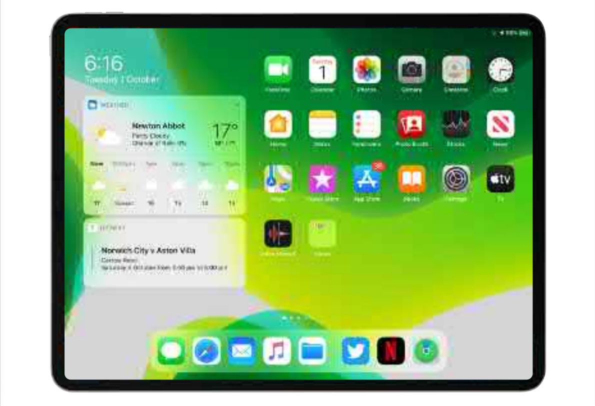
☑ Shared Albums

Create albums to share with other people, and subscribe to other people's shared albums.

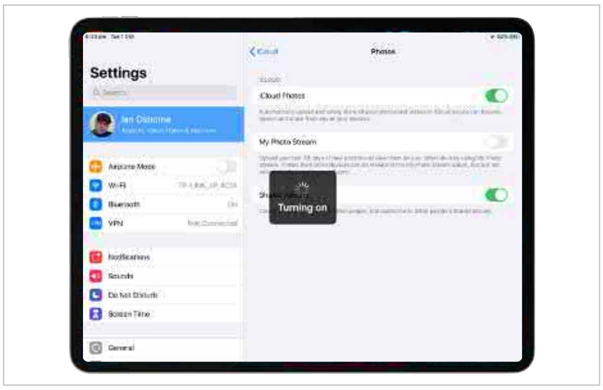
STEP 4 Now do the same on any other Macs you have. Any duplicates should be resolved by iCloud as you go. Naturally, you only need a backup of your library on one Mac.



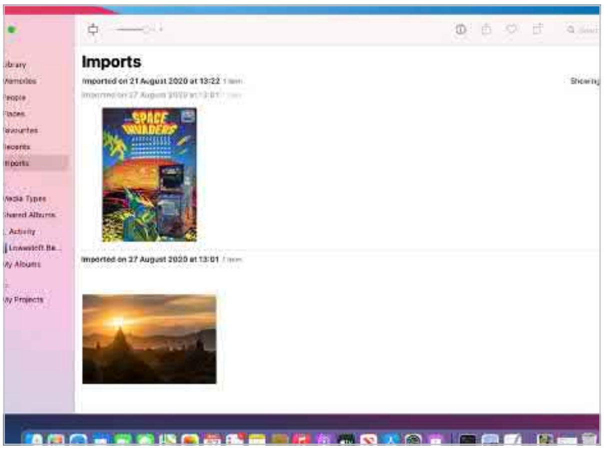
STEP 5 To sync your iOS device's Photos app with your iCloud Photo Library, first open the Settings app from the Home screen. It's the one that looks like a machine cog.



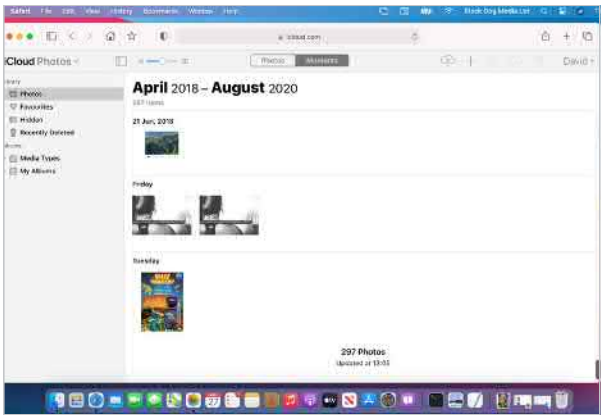
STEP 6 Click your name at the top of the left column, then iCloud in the right. Click Photos, and switch on iCloud Photo Library to enable syncing, and upload your device's photos to iCloud.


Settings
Ian Osborne
Airplane Mode
Wi-Fi
Bluetooth
VPN
Notifications
Sounds
Do Not Disturb
Screen Time
General
iCloud
Photos
iCloud Photos
My Photo Stream
Turning on

STEP 7 All your photos are shown as thumbnails and you can select and import them. Here you can see a collection of photos imported to our Mac using iCloud Photo Library.

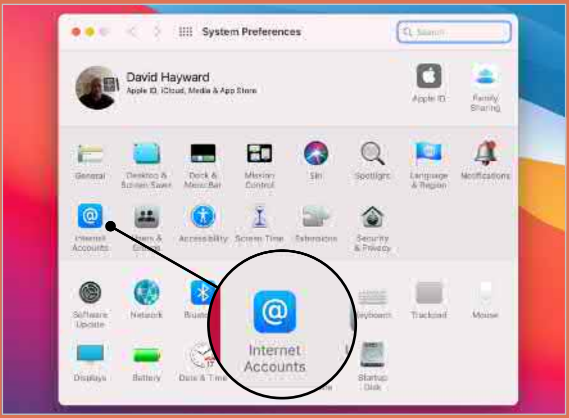

Imports
Imported on 21 August 2020 at 13:22
Imported on 27 August 2020 at 13:01
Library
Memories
People
Places
Favourites
Recents
Imports
Media Types
Shared Albums
My Albums
My Projects

STEP 8 You can also review your photos from any computer with a web browser. Just go to www.icloud.com, log into your iCloud account and open the Photos web application.

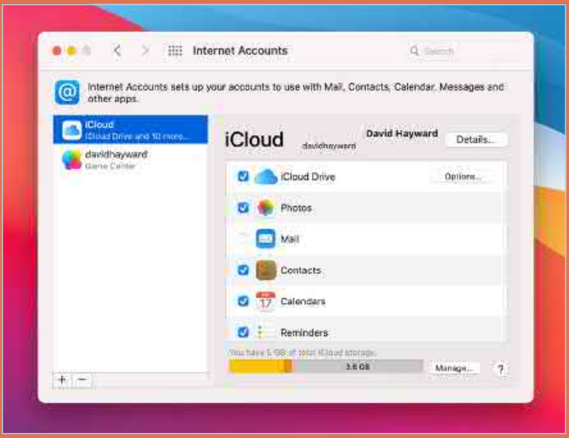

icloud.com
iCloud Photos
Photos
Moments
Photos
Favourites
Hidden
Recently Deleted
Media Types
My Albums
April 2018 – August 2020
21 Jun, 2018
Friday
Tuesday
297 Photos

SYNCING APPS IN iCLOUD

You can sync apps such as Mail, Contacts and Notes in iCloud, so edits made on one device also appear on others.


System Preferences
David Hayward
Apple ID, iCloud, Media & App Store
Apple ID
Family Sharing
General
Desktop & Screen Saver
Dock & Menu Bar
Mission Control
Siri
Spotlight
Language & Region
Notifications
Internet Accounts
Accessibility
Screen Time
Extensions
Security & Privacy
Software Update
Network
Keyboard
Trackpad
Mouse
Displays
Battery
Date & Time
Startup Disk

Open System Preferences, through the Apple menu, the Dock or the Applications Folder. It doesn't matter which. Click on Internet Accounts, which is next to the iCloud icon.

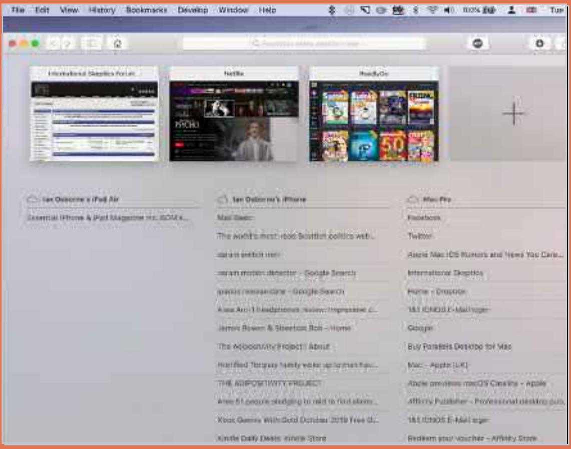

Internet Accounts
iCloud
iCloud Drive and 10 more...
davidhayward
Game Center
iCloud
David Hayward
davidhayward
Details...
Options...
Manage...

Internet Accounts sets up your accounts to use with Mail, Contacts, Calendar, Messages and other apps.

☑ iCloud Drive
☑ Photos
☐ Mail
☑ Contacts
☑ Calendars
☑ Reminders

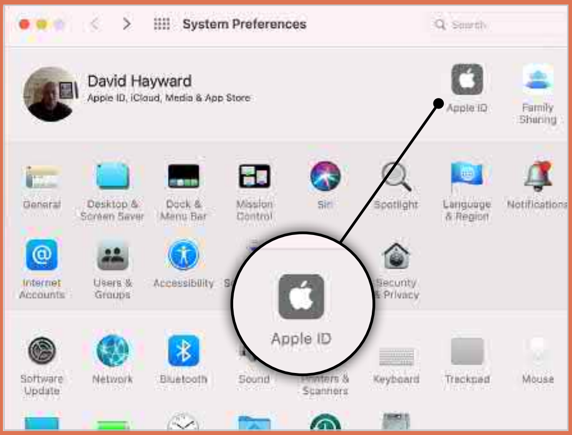
You have 5 GB of total iCloud storage.

Click on the iCloud option in the left sidebar to see which apps are currently set to sync via your iCloud account. If any are unticked that you want to sync, tick them.

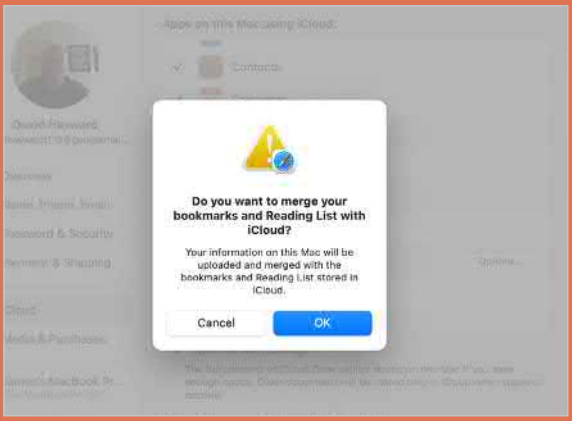

File
Edit
View
History
Bookmarks
Develop
Window
Help
Netflix
Ian Osborne's iPad Air
Ian Osborne's iPhone
Mac Pro

Your chosen apps are now synchronised across all your Apple devices signed into the same iCloud account, as long as those devices are also set to sync the same data.

SAFARI IN iCLOUD


System Preferences
Search
David Hayward
Apple ID, iCloud, Media & App Store
Apple ID
Family Sharing
General
Desktop & Screen Saver
Dock & Menu Bar
Mission Control
Siri
Spotlight
Language & Region
Notifications
Internet Accounts
Users & Groups
Accessibility
Security & Privacy
Apple ID
Software Update
Network
Bluetooth
Sound
Printers & Scanners
Keyboard
Trackpad
Mouse

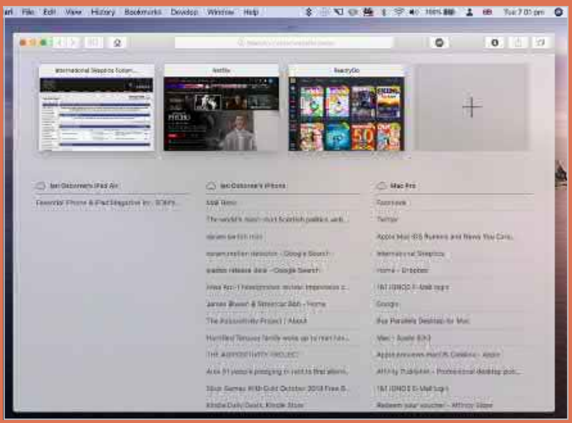
To let iCloud share all your information from Safari across your devices, first of all, open System Preferences and click on the Apple ID icon in the top row. Now click on iCloud in the left-hand sidebar.



Do you want to merge your bookmarks and Reading List with iCloud?

Your information on this Mac will be uploaded and merged with the bookmarks and Reading List stored in iCloud.

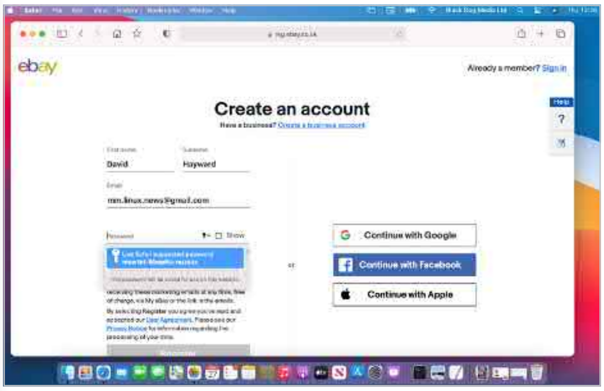
Find Safari and check its checkbox. You can now access your bookmarks and reading list on your other Apple devices, as long as they're linked to the same iCloud account and also have Safari ticked. Click OK to merge information, should the box appear.



If you have tabs open in Safari on another Mac or iOS device, you can access them on your Mac via the cloud. In Safari, click the tabs icon (top right) and scroll down to see your other devices' open tabs.

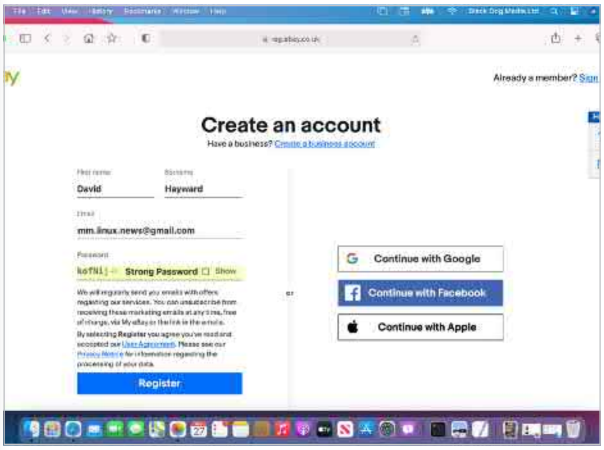
iCLOUD KEYCHAIN

STEP 1 When you sign up for an account on a website in Safari, maybe to join a forum or register for a newsletter, Safari suggests a password to use. You can use that password at the click of a button.


ebay
Already a member? Sign in
Create an account
Continue with Google
Continue with Facebook
Continue with Apple

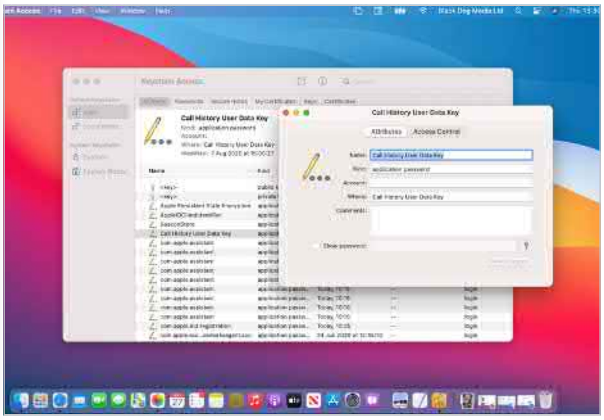
First name: David
Surname: Hayward
Email: mm.linux.news@gmail.com

STEP 2 It's then saved to your iCloud Keychain and synced across your Apple devices. If you ever need to see your password, open the Keychain Access app (it's in the Applications › Utilities folder).


Already a member? Sign
Create an account
Have a business? Create a business account
Strong Password
Show
Continue with Google
Continue with Facebook
Continue with Apple
Register

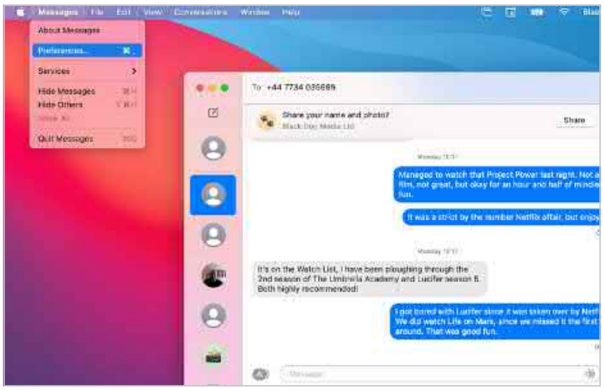
First name: David
Surname: Hayward
Email: mm.linux.news@gmail.com

STEP 3 Find and double-click on the account you wish to view, then in the pop-up window, click the Show Password box. Type your admin password in the next window and the password is shown.


Keychain Access
Call History User Data Key
Attributes
Access Control
Name:
Kind:
Account:
Where:
Comments:
Show password:

MESSAGES IN iCLOUD

STEP 1 Since macOS Catalina and the newest iPad's operating system, Messages can be synced over iCloud. To activate this on your Mac, open Messages. Under the Messages menu, select Preferences.


Messages
File
Edit
View
Conversations
Window
Help
About Messages
Preferences...
Services
Hide Messages
Hide Others
Quit Messages
Share

To: +44 7734 036686

Share your name and photo?

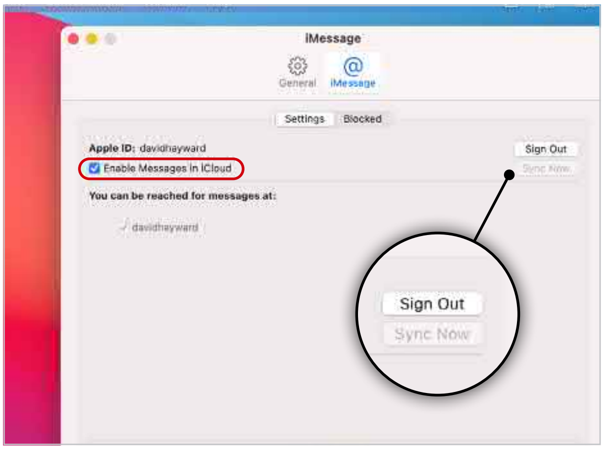
Managed to watch that Project Power last night. Not a film, not great, but okay for an hour and half of mindle fun.

It was a strict by the number Netflix affair, but enjoy

It's on the Watch List, I have been ploughing through the 2nd season of The Umbrella Academy and Lucifer season 5. Both highly recommended!

I got bored with Lucifer since it was taken over by Netf We did watch Life on Mars, since we missed it the first around. That was good fun.

STEP 2 In the Preferences window, click on the Accounts tab at the top of the window. Make sure Enable Messages in iCloud is checked. You can sync your messages from here by pressing the Sync Now button.


iMessage
General
iMessage
Settings
Blocked
Sign Out
Sync Now
Sign Out
Sync Now

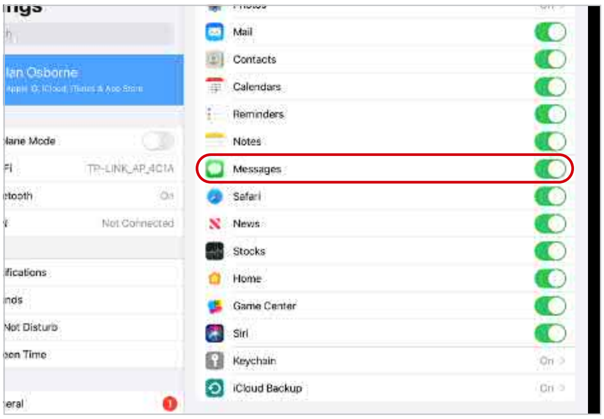
Apple ID: davidhayward

☑ Enable Messages in iCloud

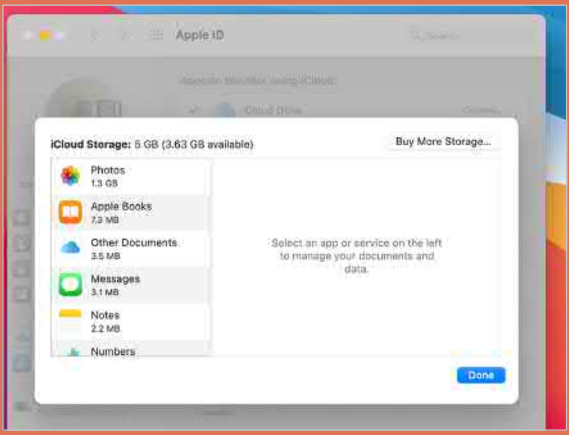
You can be reached for messages at:

✓ davidhayward

STEP 3 On an iPad or iPhone, go to Settings > [Your name] > iCloud, and make sure Messages is switched on. Your messages are now stored on iCloud and synced between all your Macs and iOS devices.


Ian Osborne
Apple ID, iCloud, iTunes & App Store
Airplane Mode
Wi-Fi
TP-LINK_AP_4C1A
Bluetooth
On
Not Connected
Notifications
Do Not Disturb
Screen Time
General
Mail
Contacts
Calendars
Reminders
Notes
Messages
Safari
News
Stocks
Home
Game Center
Siri
Keychain
On
iCloud Backup
On

UPGRADE YOUR iCLOUD DRIVE

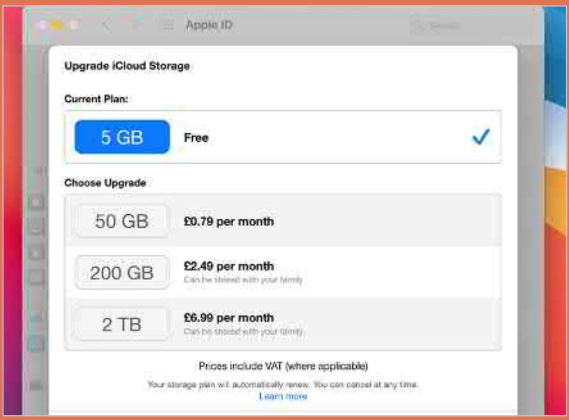

Apple ID
Buy More Storage...
Done

iCloud Storage: 5 GB (3.63 GB available)

Photos	1.3 GB
Apple Books	7.3 MB
Other Documents	3.5 MB
Messages	3.1 MB
Notes	2.2 MB
Numbers	

Select an app or service on the left to manage your documents and data.

To upgrade your iCloud storage, go to System Preferences > Apple ID > iCloud. Click the Manage button (bottom right). From the next screen, you can delete documents and data from your iCloud if you wish.


Apple ID
Learn more

Upgrade iCloud Storage

Current Plan:

5 GB Free ✓

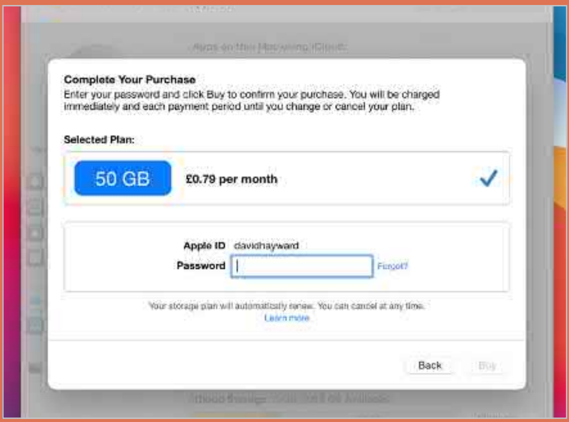
Choose Upgrade

50 GB	£0.79 per month
200 GB	£2.49 per month Can be shared with your family
2 TB	£6.99 per month Can be shared with your family

Prices include VAT (where applicable)

Your storage plan will automatically renew. You can cancel at any time.

Click Buy More Storage, in the top right. On the next screen, you're shown your current plan and options to upgrade for a higher monthly fee. Click on one to choose and click Next.


Forgot?
Learn more
Back
Buy

Complete Your Purchase

Enter your password and click Buy to confirm your purchase. You will be charged immediately and each payment period until you change or cancel your plan.

Selected Plan:

50 GB £0.79 per month ✓

Apple ID davidhayward

Password

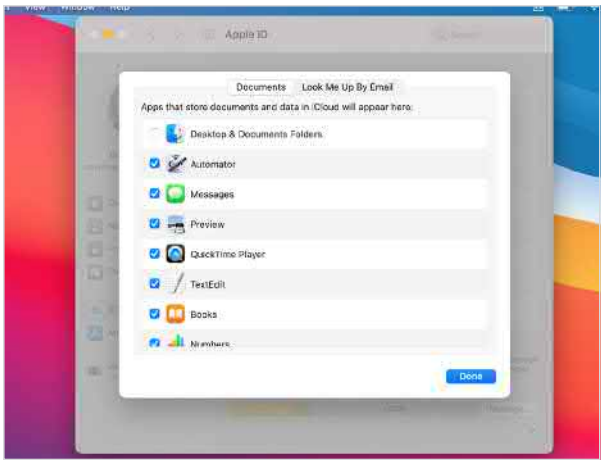
Your storage plan will automatically renew. You can cancel at any time.

You'll need to ensure that the amount per month is available from your Apple account or else you may end up losing access to the newly purchased storage plan.

iCloud Desktop Documents & Folders

With macOS, iOS and iPadOS, you can not only store your documents on iCloud but also files and folders that are found on your desktop. It's done automatically, so a file on your Mac's desktop is accessible from your mobile device and other Macs.

STEP 1 To switch on iCloud Desktop Documents and Folders on your Mac, open System Preferences and click on Apple ID > iCloud. Click on the Options button next to iCloud Drive and then check the box next to Desktop & Documents Folders. It may take time to set up.

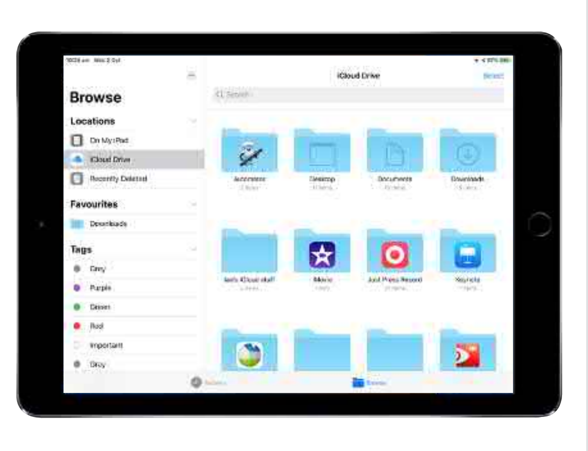


Apple ID
Documents
Look Me Up By Email
Done

Apps that store documents and data in iCloud will appear here:

- ☐ Desktop & Documents Folders
- ☑ Automator
- ☑ Messages
- ☑ Preview
- ☑ QuickTime Player
- ☑ TextEdit
- ☑ Books
- ☑ Numbers

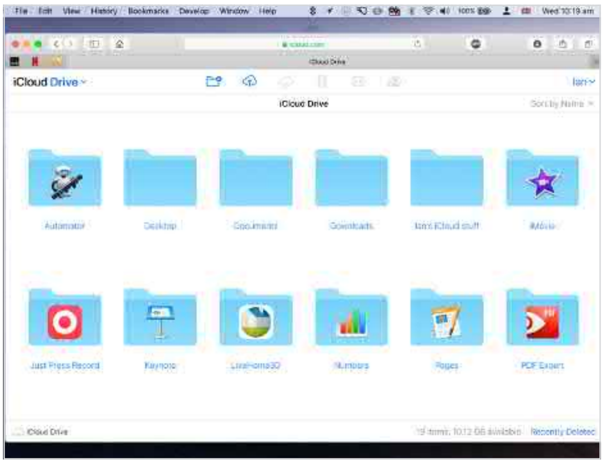
STEP 2 On iPadOS or iOS open the Files app, or the iCloud Drive app if you're using an old version of iOS. Under the iCloud Drive option, there are folders called Desktop and Documents. These contain all files currently stored on your Mac's desktop or Documents folder.



Browse
Locations
On My iPad
iCloud Drive
Recently Deleted
Favourites
Downloads
Tags
Grey
Purple
Green
Red
Important
Grey
iCloud Drive
Automator
Desktop
Documents
Downloads
Ian's iCloud stuff
iMovie
Just Press Record
Keynote

STEP 3 Documents and data on your Mac's desktop can now be accessed through the iCloud Drive folder of any Mac, iPad or iOS device signed into the same iCloud account. All Macs must be running at least High Sierra and all iOS devices must have iOS 10 or later.

STEP 4 You can also access your Desktop documents and folders using the website. Just point your browser at www.icloud.com and sign in. Open the iCloud Drive and the Desktop folder is there. You can do this on any Internet-capable device.



iCloud Drive
iCloud Drive
Automator
Desktop
Documents
Downloads
Ian's iCloud stuff
iMovie
Just Press Record
Keynote
LiveHome3D
Numbers
Pages
PDF Expert

The Future of iCloud

Apple's iCloud has improved significantly over the years and is now considered one of the leading examples of cloud technologies. As we've already seen, the service encompasses everything an Apple user does, but what could be in store for iCloud in the coming years?

Apple is going to be investing a considerable amount of time throughout 2020, upgrading its leading products, including the likes of tvOS 14 and newer versions of macOS. The iPhone 12, due for release later in 2020, will see significant improvements in AR experiences, and more. There's also the rumour of an updated Apple TV, or Set-Top Box, which would make for some interesting predictions of how iCloud will function in the future.

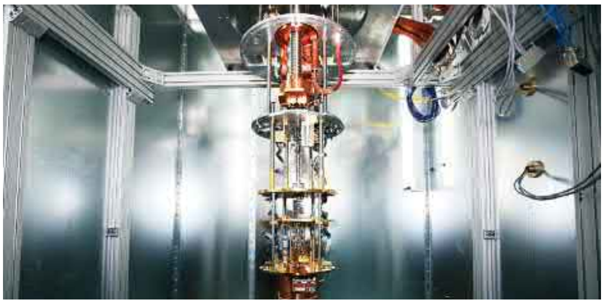
APPLE TV AND iCLOUD

Launched in November 2019, Apple TV Plus is Apple's video-on-demand service equivalent to Netflix. The launch of Disney+ around the same time did put something of a dampener on the Apple TV Plus launch, but the service is strong enough to compete, and there's some exciting content already available.

Of course, all this content is coming from the Apple cloud servers, streaming via the company's former Project Pie servers that are designed for increased speed and operated more directly by Apple - despite most of the iCloud content being hosted on Amazon Web Services and Microsoft Azure platforms.

Now based in Foulum in Denmark, Apple's newest datacentre outside of the U.S. is helping to boost the content of not just Apple TV Plus, but also host millions of iCloud user's data. It's also worth noting that the main draw of the energy requirement for Apple's server farms comes from renewable energy sources, such as wind farms off the coast of Denmark, with more renewable sources being part-funded by Apple for Denmark in 2030.

QUANTUM COMPUTING



It's also rumoured that Apple is looking into the newest wave of quantum computing experiments. A recent announcement from a leaked Google paper indicated it had performed a form of calculation previously thought impossible on even the most powerful modern supercomputer.

Researchers achieved Quantum Supremacy, which, in layman's terms, means a calculation that would have taken a supercomputer 10,000 years to perform, took a new generation quantum computer just 200 seconds.

Apple's interest, therefore, is justified. If the new generation of quantum computing servers can handle these kinds of calculations, then sorting and shifting data to millions of users, as well as containing and serving next-gen Augmented Reality, is a cinch.

Cloud Technologies:
Artificial Intelligence

AI, Artificial Intelligence, has evolved significantly over the last decade. Where once it was perceived as something we'd probably only achieve in the next hundred years or so, it's now believed that true AI is, in all likelihood, just a few years away. And despite that scaring the socks off many futurists, it may astonish you to discover that AI is already here.

If you're able, pick up your phone, activate it, and ask either Siri or the Google Assistant a simple question. Now ask it a more complicated question. You've just talked to an AI system designed to listen out for your voice, analyse what's being asked and respond to it in an appropriate fashion. Significantly, it also learns from what's being asked.

The Google Assistant, Siri, Cortana, Alexa, and whatever else is available now, are all cloud-based natural language intelligent bots that use the complex computing capabilities of the cloud to provide a personalised consumer experience.

There are two sides to the AI coin: the intelligence side that, when asked something, knows what to do or can work out what needs to be done, and the learning side, that will actively retain knowledge and learn from each interaction with you. Both of these aspects are inherent to every intelligence bot, regardless of on which system they work. But AI is not limited to just chatbots who interface with you.

THE LEARNING MACHINE

Consider any search you conduct via the Internet or some form of database. Regardless of whether it's a search for artists on Spotify; the latest fashion from the website of a high street store, or electrical goods from Amazon, each search employs a level of AI to help form the results. Machine learning is also employed to predict further what you might require, and present advertising for products in which you may be interested based on your past views and searches.

Facebook and YouTube are at the forefront of this type of AI, a search in YouTube for Christmas adverts from the 80s, brings up suggestions for past episodes of popular TV programs from the 70s and 80s. While random searches through a friend's timeline can result in Facebook displaying a list of potential friends, or even products, that your friends have looked up via the Facebook Marketplace.

It's all about using data analytics to create a prediction profile for a user. Whether that customer uses a set of recurring websites, buys the same products from the supermarket, or watches the same content day in and day out. AI can build a profile of that customer, then target other sites, products, music, videos and so on that's not too dissimilar from what they're used to consuming. Occasionally, the AI spits out something new that's outside of the user's regular requests, to gauge how the user responds. A positive response builds on the profile and leads to more areas of advertising and suggestion, whereas a negative response forces the AI to rethink and perhaps include something else further down the line.

CLOUD AI

The problem for companies who sell products, or monitor customers, is that the data sets created by billions of users worldwide are simply too large to manage. This is where the cloud comes in. Thanks to the data-intensive workloads a cloud service can handle, it's relatively easy for a company to design an AI report on its userbase, as combining the programming of the AI with the power of the cloud will enable the vast volume of information to become readable.

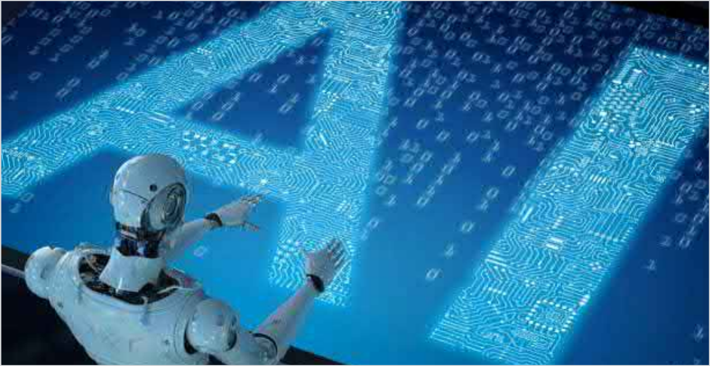
In fact, the global AI market is expected to grow to over $200 billion by 2025, making it one of the fastest-growing markets in the world. Integrating AI into such a workflow is a challenge, but, with such growth, it's quickly becoming a market that appeals to programmers for offering better and more accurate AI solutions for companies.

IT'S NOT ALL BAD

Considering AI in light of gathering consumer data, it does come across somewhat ominous; like an all-seeing eye pervading everything we do, buy, look at, or interact with. Nevertheless, AI does help simplify a lot of tasks that would have taken months for a team of people to sift through.

Many of these AI projects include environmental issues, science and technology, engineering, education, and manufacturing. AI doesn't just worm its way into our lives and peep at our every move; it's also involved in helping to further technology and create a better environment.

Of course, we won't mention the two cloud-based AI created bots that went on to plan the demise of humanity before they were shut down.



98 **Team Collaboration Cloud Examples**

Discover which Cloud services work to make a better team collaboration setup.

106 **Email Providers for SMBs**

Learn which services offer the best Cloud-based email solutions.

114 **Hybrid Cloud Benefits**

In need of a best-of-both-worlds solution? These Hybrid Cloud Benefits will help you out.

Cloud for Business

We've looked at how cloud services benefit and support the home user, but what about your business?

Small to medium business owners are often fighting a losing battle when it comes to implementing technology that works for them, with cost the major reason for lack of technology adoption.

Thankfully, the cloud has a lot to offer the SMB user. It will grow with your business and it can be relatively inexpensive to implement too.

96 Cloud Services for SMB/SME
98 Team Collaboration Cloud Examples
100 Cloud eCommerce Examples
102 Cloud Accounting Examples
104 Data Management Cloud Examples
106 Email Providers for SMBs
108 Green Cloud Providers
110 Public Cloud Benefits
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114 Hybrid Cloud Benefits

Cloud Services for SMB/SME

As the owner of a small /medium business, cloud technologies are certainly worth considering. They carry the technical impact that an in-house solution can deliver, without the extra cost of administration, space used, or purchasing hardware. But what exactly can you expect from the cloud?

GOOD FOR BUSINESS

Cloud-based tools and services that are best suited for SMB/SMEs are quite varied, depending on the type of business you run. Here then are ten examples of what's on offer.

COMMUNICATIONS

Voice over IP (VoIP), video conferencing, email marketing and social media engagement, are an essential part of the modern business. You're no longer limited to word of mouth within the town in which you operate, with cloud communications services you're a part of the global market.

E-COMMERCE

A web-based storefront is a powerful element of the modern business, but it needs to be flexible enough to work for you and what you're selling. Cloud computing services that cater for e-Commerce solutions are ideal in helping you win more custom and gain ground in an ever-competitive market.

SECURITY

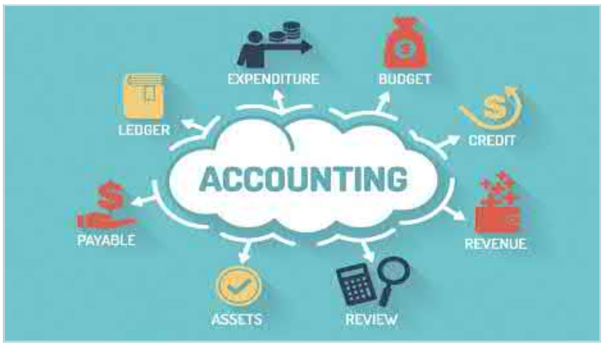
Offering a digitally secure environment for you, your co-workers and your customers is a great benefit when it comes to gaining new business. Tales of companies going under due to a lack of security with their customer database are all too familiar. Cloud services can greatly enhance your security and that of your customers.

CONNECTIVITY

Cloud connectivity tools are far better at allowing remote workers, and customers from around the world, to connect to the services that your business offers. No matter what time, and where in the world a customer or employee is based, they'll be able to access what they need; giving you time to focus on the core business.

FINANCIAL

Small businesses are increasingly turning to a cloud-based accounting and financial solution over the traditional desktop accounting software. Cloud financial services offer secure access to the company's financial records, are cheaper to establish and allow you to access your records from any Internet-connected device.



STORAGE

The biggest draw to using a cloud service is undoubtedly secure and reliable data storage. Many SMBs opt for a complete cloud-storage solution, keeping all their data online to avoid data disasters, and allowing 24/7 access to it. Most, though, tend to lean toward a hybrid solution, where both on-site and cloud storage solutions are at work.

CLOUD STORAGE

COLLABORATION

Collaboration in the cloud can have a significant impact on how you and your business work with others. Remote or mobile users can work as if they're in the office, and cross-company projects can be better managed. It's a smarter way of working together, and thanks to cloud technologies, also a lot easier.

ONLINE LEARNING

Colleges, training centres and academies can all benefit from the vast range of cloud-based e-Learning services. Whether it's learning a new language, training for work-based qualifications, or creating your own learning content, there are cloud solutions available to create whatever you need.

EMAIL

Setting up, building and maintaining your own email server does take a high level of expertise to create and maintain; and that's often quite expensive. Using cloud-based email provision is a cheaper and hassle-free solution that the SMB/SME should really consider adopting.

HELPDESK

Helpdesk cloud software isn't limited to just the technical side of a company. A good Helpdesk solution can be customised to fit whatever sector your company supplies. What's more, a cloud Helpdesk allows people to contact you from anywhere in the world, widening your customer base.

Team Collaboration Cloud Examples

The ability to work together on a single project, no matter where you are in the world, is what communications technology was originally designed for; consider John McCarthy's concepts from the 50s. Finding the right tool for the right job, though, requires some research.

WORKING TOGETHER

There are countless cloud collaboration services available, which can be quite bewildering. Here are ten proven business solutions to help you fine-tune your choice of provider.

DROPBOX BUSINESS

One of the more popular cloud collaborations services available for businesses is from Dropbox. With companies such as National Geographic, University of Cambridge, AA and more, the service is designed to scale and grow as your collaboration with others does.

Dropbox for Business

HUDDLE

Huddle offers a secure cloud collaboration service for customers such as the Department for Work and Pensions, the NHS, and the U.S. Department of Homeland Security. Files, tasks and team communications are all handled easily and can deliver exceptional results for your business.

CITRIX SHAREFILE

Citrix has a long history of working with collaboration services. The company's newest cloud-based resource is ShareFile, which provides a simple, secure way to collaborate with teams from around the world.

GOOGLE BUSINESS APPS

Aside from offering a complete cloud solution for the home user, Google's apps also cater to the business user. The collaboration tools are the same as what's on offer for free; however, a business can demand more content, space and unique customisations.

Google Apps for Business
31

OFFICE 365 FOR BUSINESS

The business side of Office 365 offers considerably more than what the home user gets. For a reasonable monthly cost, you get all the usual Office 365 apps, alongside MS Teams, SharePoint, and OneDrive for business; all of which make for an excellent collaboration suite of tools.

BOX

Box prides itself on offering a simple, centralised service where your teams can manage and collaborate on projects more effectively. The workflow is easily managed, and a lot of the setting-up processes are handled automatically.

ASANA

This excellent service gives teams everything they need to stay in sync, hit deadlines and reach their goal. Users can share, collaborate and focus on what's needed to bring together the project or customers. It's a streamlined service that's very visual and comes together really well. There's a ton of features, and the service is continually growing.

YAMMER

Yammer is a part of the Office 365 business suite that focuses on social networking and team collaborations. It's a concise and easy to use service that works seamlessly with Office and fosters great collaborations across the workforce.

TRELLO

Trello is an excellent productivity and collaboration platform. It's designed to help your business increase its workflow with teams from anywhere in the world. It's a reasonably priced, integration app like Evernote, Google Hangouts, Dropbox and more. It's little wonder that the likes of PayPal, Kickstarter, Adobe and Pixar use its services.

MANGOAPPS

Ovum Research has ranked MangoApps as the best mid-market collaboration services in a recent enterprise social networking report. The company's collaboration tools are excellent and cover every aspect of the cloud service to deliver a scalable solution for your business.

MangoApps
THE SOCIAL COLLABORATION NETWORK

Cloud eCommerce Examples

The ability to lower costs, respond quickly to any market opportunity and accelerate sales are why many businesses are turning to cloud-based eCommerce applications. There are countless eCommerce solutions available, so again, some research is needed beforehand.

CLOUD SALES

Businesses need to consider many aspects when it comes to choosing the eCommerce platform that best suits their needs. Out of the many, here are ten excellent examples to investigate.

SHOPIFY

Hailed as one of the best eCommerce cloud services available, Shopify covers pretty much every aspect of sales for your business. It's easy to use, has a vast range of services, and can be customised for your company.

BIGCOMMERCE

Another of the top names in e-Commerce cloud computing is BigCommerce, a company that prides itself on handling huge volumes and more web traffic. With an average uptime of 99.99%, BigCommerce is an ideal solution for those businesses that can see significant growth in their sector for the future.

BIGCOMMERCE

YAHOO AABACO SMALL BUSINESS

Using Yahoo! as an e-Commerce platform may not be every company's first choice. However, Yahoo! Aabaco Small Business is one of the leading e-Commerce services. It offers a stable, secure and scalable platform, as well as best in class SEO and e-shopping integrations.

YAHOO!
Aabaco Small Business

VOLUSION

Volusion is another of the big heavyweight names when it comes to e-Commerce and online shopping. With it, you can create your online store quickly and easily, building the e-Commerce front end with numerous themes and all at a reasonable monthly cost.

1SHOPPINGCART

1ShoppingCart is an all-in-one e-Commerce solution offering a range of packages that cover all aspects of getting your online store up and running. There's a high degree of flexibility both for the business and the products your selling, plus it's easy to manage and update.

1ShoppingCart®

3DCART

Although not as well-known as some of the other e-Commerce solutions in this list, 3dcart is by no means a minnow in the online shopping ocean. With competitive SMB price plans and plenty of technology available into which the business can grow and expand, 3dcart is an excellent choice.

3dcart

WIX

Surprisingly Wix, the free website builder, also offers an e-Commerce service. If you're a growing, but still small, business and you want a hassle-free and cheap e-Commerce solution, then Wix may well be worth investigating. While it won't be able to compete with the big e-Commerce names, it's a fantastic resource to consider.

WiX

ETSY

Etsy is an interesting addition to this list. It's not as much of a heavyweight e-Commerce platform as most of the companies here, but it can still offer the SMB user exactly what they require. With no monthly fees (just listing, transaction and payment processing fees), and a great selection of tools available, it's an ideal start.

Etsy

X-CART

X-Cart uses a host of open-source tools to provide an effective e-Commerce platform. The features this company offers are too numerous to list here, but suffice to say it pretty well covers most aspects of your online business. The pricing works from free use, up to several thousand for a lifetime license and top tier support.

XCART

PINNACLECART

This is another all-in-one e-Commerce and online shopping solution, very similar to that of 3dcart. With it, you can create some stunning storefronts, and integrate leading business tools into your site. It's easy to use and can expand as your business and customer base grows.

PinnacleCart

Cloud Accounting Examples

Small business owners no longer need to purchase expensive and time-consuming accounting software, thanks to cloud accounting services. The benefits of accounting in the cloud are well documented: better security, disaster recovery, and accessible data. But what's available for you?

CLOUD FINANCIALS

A typical cloud accounting service offers invoicing, banking, purchasing, expenses, and tax management, with the ability to integrate add-ons such as PayPal.

CLEARBOOKS

ClearBooks is an excellent start when researching cloud accounting for your business. With it, you can create customisable invoices, set automatic payment reminders, and schedule recurring invoices. It's also excellent for keeping up with your tax returns and managing your banking.

ClearBooks
Online accounting to free your time

FRESHBOOKS

According to FreshBooks, you can save 192 hours a year just by using its software. Hailed as one of the easiest to use and implement, cloud accounting services FreshBooks can manage every aspect of your small business accounting needs, together with the ability to integrate numerous apps.

FRESHBOOKS
cloud accounting

XERO

Xero allows online invoicing, a mobile app, stock management, payroll management and bank reconciliation. It can handle multiple currencies, has a significant level of security, and customisable reporting. In short, it's considered one of the best online accounting solutions available.

xero
Beautiful accounting software

QUICKBOOKS

QuickBooks is an excellent choice of cloud accounting services for the small business user. It offers good value for money, is easy to use and covers everything you'll need from financial software, including an easy to use tax return feature.

intuit
quickbooks.

KASHOO

Kashoo advertises itself as being 'easier than QuickBooks, more powerful than FreshBooks, and more human than Xero'. There are certainly plenty of features available, and it's also good value for money. One worth considering for your SMB needs.

ZOHO BOOKS

This is another interesting, easy to use online accounting platform, specially designed for small business users to help manage their finances. The Zoho Books dashboard is a clean interface, which offers the user quick access to everything they'll need to track and automate their accounting.

KASHFLOW

This London-based cloud accounting service specialises in providing everything the small business user needs from their financial software. It's secure, quick and easy to set up, easy to use, and integrates over 85 eCommerce add-ons. It's also very reasonably priced and provides a wealth of other features.

ONEUP

OneUp is one of the fastest growing online accountancy platforms for small business owners. With advanced automation, a tidy interface, competitive pricing plans and an all-in-one business management services, there's little wonder why over 700,000 users have adopted it.

GO DADDY ONLINE BOOKKEEPING

Formally known as Outright; the acquisition by Go Daddy boosted the company's SMB accounting services, helping smaller companies get the best from an easy to use, cloud-based financial platform. There's plenty on offer here and is certainly worth considering.

SAGE

There can hardly be a list of accounting services without any mention of Sage. The company is a giant in the financial market, and offers everything from individual users, to SMBs, mid-sized businesses and beyond an incredible cloud accounting package.

Data Management Cloud Examples

Data management in the cloud is more than just online storage. A good data management cloud service offers multiple platform access, collaborations, sharing, syncing with devices and operating systems, as well as good value for money and a secure digital environment.

DATA CLOUDS

Cloud storage can greatly improve a business's operation by offering unlimited access to its data, from anywhere and at any time. There are countless services available, so here are ten for your consideration.

DROPBOX

The business side of Dropbox is one of the top, cloud storage choices for the SMB user. It's priced competitively, offers storage, centralised administration and better management of your online documents.

Dropbox
for Business

BOX

Box offers the SMB user a great cloud storage platform. Collaboration, file sharing, security, content management and mobility are all catered for using Box's easy to navigate and use interface. You can also integrate popular apps such as Office 365, Google Apps, SalesForce and many more.

box

SUGARSYNC

SugarSync has been a great value cloud storage provider for many years. The company offers a range of flexible features and solutions for the end-user, along with the usual collaboration, syncing across devices and operating systems, and disaster recovery.

SugarSync

GOOGLE DRIVE

Without a doubt, one of the most used cloud storage solutions available to the business user is from the Internet giant, Google. There's plenty of storage available, up to tens of terabytes, and naturally, you have the backing of one of the biggest companies on the planet.

Google Drive

MICROSOFT ONEDRIVE

Integrating Office 365, its Office Online apps, and the company's server and SharePoint portals, Microsoft's OneDrive is probably one of the first choices of cloud storage for the business user. There are numerous features available, and it's a reasonably priced service too.

CARBONITE

Ideally suited for small business users, Carbonite offers a worry-free cloud data protection service. You can back up your data from a range of devices and computers, even servers, and synchronise mobile data when out and about.

SPIDEROAK

SpiderOak is an interesting cloud storage service, in that it's one of the most secure available. The company uses a No Knowledge feature whereby the company has no knowledge of what's stored in your area, as each user's content is covered with a range of impenetrable cryptographic encryptions.

JUSTCLOUD

JustCloud offers data synchronisation across multiple devices, mobile access, file sharing, and high-level encryption across its data centres. The price plans are reasonable, and for an annual payment, there are additional services to adopt.

ZOOLZ

Zoolz offers the business user a service that utilises artificial intelligence to back up, discover and organise stored data. The company also offers a unique three-layer storage service: Instant, Cold and Local storage, whereby data can be organised into on-demand, rarely used, and hybrid recovery options.

OPENDRIVE

Data management, sharing, online editing, collaboration, and user management are all part of what OpenDrive offers its business customers. There's a lot more on offer too, with competitive price plans for up to 100TB of storage available.

Email Providers for SMBs

Email has become one of the most critical services of the modern business. Customers are won and lost through email, co-workers are better informed and can collaborate, and without email, your company's growth is severely limited.

CLOUDY WITH A CHANCE OF EMAIL

The importance of finding a good cloud-based email provider goes without saying. There are plenty of services to research before choosing, which can be time-consuming. Here's ten to help start you off.

GSUITE

Google's Gmail for business is an obvious first choice for most small business users; there's a good chance you and your workforce already use the personal version. Gmail for business offers 30GB of storage, compatibility with MS Outlook, and a personalised email address for your company.

G Suite

AMAZON WORKMAIL

Amazon's WorkMail is a good choice for the growing business. It's easy to use and set up, supports existing desktop and mobile email clients, is value for money and uses enterprise-grade security to help protect your inbox contents.

amazon WorkMail

MICROSOFT EXCHANGE ONLINE

The competitively priced Microsoft Exchange Online offers the business user premier, disaster recovery solutions, global server coverage, anti-spam and anti-malware filtering, and a range of plans from which to choose. It's easy to use, familiar with its users, and easy to maintain too.

Exchange

YAHOO AABACO SMALL BUSINESS

Also called Yahoo! Business Mail, the service offered here for small business users, is certainly worth considering. There are a lot of features available, a management console that's easy to use and understand, and the pricing is reasonable too.

YAHOO!
Aabaco Small Business

RACKSPACE

Rackspace is an affordable email hosting service for small business users. Outlook, webmail and mobile access are all covered, along with large mailbox storage options, and an easy to set up email migration service. Support is good, and the company even offers several How-To articles to help you out.

ICEWARP

With over 50 million users worldwide, including the likes of Canon, Sony and Marriott, IceWarp is a great email provider with plenty of features to offer. It's an integrated solution for email, document management and communications, with Outlook support and collaboration with other contacts.

GMX

GMX is an interesting, cloud, email service solution. It offers unlimited storage, antivirus protection, a spam filter, the ability to send up to 50MB file attachments, and access via mobile devices. There's a lot more available from GMX, so it's definitely worth checking out.

ATMAIL CLOUD

Atmail Cloud is customisable, simple to manage and use, offers spam and malware protection and filters, is scalable, and can be used as a hybrid solution; meaning it is installed on-premises as well as in the cloud.

KERIO CLOUD MESSAGING

Kerio Cloud Messaging offers spam filtering, drag and drop attachments, custom filters, desktop notifications, a calendar with invite facilities, contacts, tasks and notes, and instant messaging. The price plans are very competitive, with unlimited mailbox storage from as little as $7/£5.60 per month.

IPSWITCH HOSTED IMAIL SERVER

Reliability and ease of use are the key factors for Ipswitch's Hosted IMail Server. This cloud email service has countless benefits on offer for the small business user and is reasonably priced too.

Green Cloud Providers

Although powering a huge datacentre may not appear to be very ‘green’, the environmental costs of cloud computing have been assessed by Sustainablebrands.com and found to be of benefit to those businesses looking to reduce the impact on the environment.

GOING GREEN

Fewer machines, efficient climate control, reuse of generated heat, and many more environmental benefits can be delivered from cloud computing. Here are ten cloud providers who are ‘going green’.

EVRY CLOUD SERVICES

Based across Scandinavia, this cloud hosting company offers many excellent services through its green datacentres. Powered by hydropower and operating in accordance with ISO 14001 Environmental Standard Guidelines, this Nordic datacentre is one of the greenest in the world.

GOOGLE

Google’s entire infrastructure is carbon-neutral, which is a pretty impressive feat considering the size and computing power at which the company’s datacentre operates. 35-per cent of the energy that Google uses for its datacentres comes from renewable sources, and the company is aiming to improve that further in the future.

NETAPP

Headquartered in California and ranked in the Fortune 500, NetApp was founded in 1992 and is a cloud data services and data management company. It recently purchased the Icelandic cloud data company GreenQloud, and as such inherited GreenQloud’s excellent environmental processes. Further to this, NetApp conforms to ISO 14001:2015, is Energy Star recognised, and holds LEEED Certifications for three of its buildings.

MICROSOFT AZURE

Microsoft Azure offers a set of cloud services through the company’s managed datacentres. The company’s datacentres and cloud platform services are carbon-neutral; using renewable sources for its energy needs. In fact, Microsoft is one of the U.S.’ largest green power purchaser.

CLOUDSIGMA As well as adhering to the highest possible security standards, Swiss cloud service provider CloudSigma is also carbon-neutral across all its datacentres. It was one of the first datacentres to achieve carbon-neutral status and is one of the most power-efficient in Europe, too.

IBM SMARTCLOUD IBM's SmartCloud datacentres are exceptionally environmentally friendly. Just a few years ago, the European Commission awarded 'Participants in Datacentre Efficiency' to twenty-seven of the company's datacentres. So as well as offering enterprise-level cloud services, the company is also actively lowering its carbon footprint.

APPLE iCLOUD Suited for home and business users, Apple's iCloud uses renewable energy across its entire business - specifically the iCloud datacentres - as well as greener materials in its manufacturing and building processes. In 2015, 93-per cent of the company's energy use came from renewable sources, and 100-per cent of the datacentre's energy use is clean.

RACKSPACE As well as offering excellent cloud services, Rackspace also operates its datacentres from 100-per cent renewable sources. The company is also continually looking to reduce its environmental impact further through the use of greener materials.

DEDISERVE Dediserve is one of the biggest cloud service providers in the world, operating fifteen datacentres from around the world. This Irish company has taken great steps to reduce its environmental impact over the years; ensuring that its power consumption is considerably less than a conventional in-house server setup.

AKAMAI - Akamai's delivery servers, consisting of thousands spread across 126 countries, is committed to lowering its environmental impact by using renewable fuels. The company has plans to significantly reduce its energy impact by 2020 and lower its carbon emissions to less than 2015 levels.

Public Cloud Benefits

Public clouds are the standard cloud models, whereby a service provider makes its resources available to the public, and multiple clients, over the Internet - hence Public Cloud. Google Drive, Microsoft Office 365, and so on are all examples of a public cloud.

THE PUBLIC CLOUD

So, what are the benefits of using Public cloud computing over traditional setups, private or hybrid clouds? Let's have a look at what the public cloud model has to offer the SMB user.

PAY AS YOU GO

One of the main benefits of the public cloud is that it's decidedly cheaper to set up than dedicated, in-house hardware, software and everything else. Public cloud servers and space is rented, and therefore you'll only pay for what you use. Plus the initial investment is very low, even zero in some examples.

CHEAPER ENERGY COSTS

To expand the Pay as You Go benefit, if you're considering a traditionally installed server, with other hardware, then you'll also need to factor in climate control and upkeep for that server, and possibly its own dedicated server room. The costs soon mount up, whereas using a public cloud cuts out everything associated with locally installed hardware.

SCALABILITY

As your company grows, so will its need for more data storage, user licenses, and infrastructure. This is the financial impact of using an in-house approach, along with costing time for the technical staff to set up. Using a public cloud offers elasticity and scalability for the SMB user with limited interruption and less cost.

SECURITY

Although there are instances of security breaches in public cloud services, they are far less than the documented security breaches when using an in-house setup. Security is handled by the cloud service provider, to some extent covering you from the fallout of a security breach.

MOBILITY

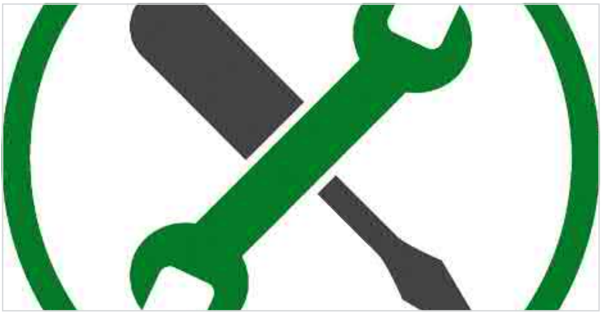
Mobile, home working, collaborations across other companies (and globally), and file sharing are all benefits of using a public cloud setup. As other companies also use a public cloud, the integration is relatively seamless, and as long as you have an Internet connection, you can stay in touch.

EASE OF USE

A public cloud, when compared to other cloud service types and a traditional in-house setup, is relatively easy to set up for your business. You don't necessarily need any significant technical knowledge, and the process is often backed up by 24/7 support from the cloud service provider.

LOW MAINTENANCE

Although you'll still need to maintain your in-house computers and devices, using a public cloud service drastically reduces the high-end levels of maintenance usually associated with running your network. It's not just the maintenance of the servers either, consider the saving in not having to maintain a server room, climate control etc.



NO CONTRACTS

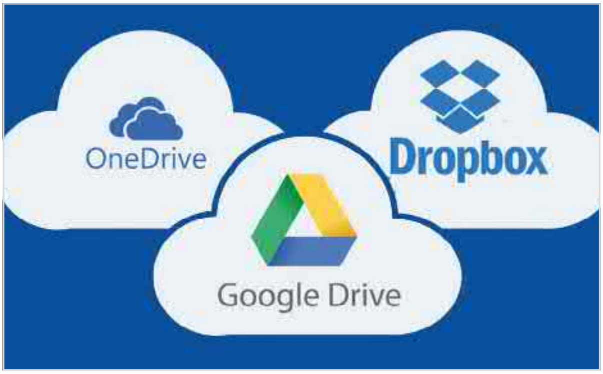
Public cloud services, by their Pay as You Go nature, are often contract-free. While that won't necessarily impress some business users, others will enjoy the freedom of not having to commit to a long-term contract.

DOWNTIME AND UPGRADES

As you are no doubt aware, upgrading software or hardware within a business can be tricky. Updated software may not work with older versions, hardware may require more expense to implement, and testing times for IT staff can be long and expensive. A public cloud service cuts down on the expense, and time taken during upgrades, keeping downtime low.

PLENTY OF CHOICE

As you are aware by now, there's plenty of choice when it comes to picking a public cloud service provider. You're not limited by geographical location or languages, or by what's available in terms of IT support or skills in your local region.



Private Cloud Benefits

Contrary to public clouds, a private cloud is dedicated to a single organisation offering better control over the cloud setup, better security and privacy, virtualisation, and better resource allocation.

THE PRIVATE CLOUD

While public and private clouds share many benefits, opting for a private cloud can yield better results for a business – depending on what the business wants from its cloud service.

CONTROL

A private cloud setup gives more control to the business over the cloud's servers and configurations. In a private cloud, the servers are dedicated to the business therefore you can tailor it to your own company specifications.

REDUNDANCY

More often than not, a private cloud setup factors in better redundancy than that of a public cloud setup. Disaster recovery solutions are also generally built into the private cloud, allowing you to recover your data quicker, should anything go wrong.

IMPROVED SECURITY

Sensitive data such as banking, medical or other confidential material, requires a higher level of security than that of so-called non-sensitive data. Using a private cloud solution means that your company, and your company alone, has access to your data.

CONTRACTS

On the flip side of no contracts through a public cloud service, a private cloud is a contract between you and the cloud provider. Therefore, should anything go wrong with the service (security, data loss etc.) then, within the legal wording of the contract, you're covered.

CLOUD BURSTING

Cloud Bursting is a term used in private cloud setups. It describes a sudden increase in demand from your business that exceeds your quota on the cloud servers. In these cases, non-sensitive data can be exported to a public cloud setup, freeing up space on your private cloud.

FLEXIBILITY

A private cloud isn't as flexible as that of a public cloud. However, if you know what your computing demands are going to be, over a set period, you can configure your private cloud to take that into account; potentially saving money long-term.

PERFORMANCE

As you're using a dedicated server in a private cloud setup - not shared with hundreds of others - you'll see the benefit of improved computing performance. If you deal with big data, AI, or developing your own apps, then private cloud computing will benefit you more.

CUSTOMISATION

In a private cloud setup, you'll be the one who specifies what hardware and software setups you want for your business. You're not limited to what a public cloud offers by default, and you can tweak your needs to suit your business better.

COMPLIANCE

By adopting a private cloud setup, you're able to better comply with business regulations. Whether that's a security compliance, environmental compliance or anything in between, you'll be able to remain compliant with the laws and industry regulations for your business.

COMPLiANCE

EXPERTISE

One of the more important benefits of using a private cloud setup is that your IT is managed in-house. With such a high level of expertise within your business, you'll be able to implement and exercise your company's technology over the competition.

Hybrid Cloud Benefits

A hybrid cloud setup is a best-of-both-worlds approach. You have a mixture of in-house computing with server hardware and software while using both types of cloud-based services. An example is a company with its own server for storage and also using webmail.

THE HYBRID CLOUD

An ideal hybrid cloud setup allows a business to move its workloads between in-house, private and public clouds seamlessly; giving the business a host of extra benefits.

WORKLOAD FLEXIBILITY

Without a doubt, the greatest benefit a hybrid setup offers is the flexibility of an in-house server setup while being able to move into private and public cloud setups. Information, according to its sensitivity, for example, can be arranged between the three models ensuring greater security.

ABSOLUTE CUSTOMISATION

The hybrid cloud approach also ensures that a business has its technology customised to near perfection. Use of in-house and private cloud setups can be personalised to the company as a whole, or, if necessary, for each employee. And pushing information to the public cloud enables ease of access for the workforce.

BIG DATA

A business that uses Big Data - a term that describes voluminous amounts of data mined for information collectively - can utilise a hybrid cloud approach to store the vast data collection locally, while simultaneously running cloud-based analytics in the cloud.

GREATER SECURITY

The security aspect is improved through the use of in-house and private cloud access. A hybrid cloud setup utilises all the security benefits of every cloud service layer, as well as locked down, on-premises security.

IN-HOUSE DEVELOPMENT

A lot of the time, a hybrid setup calls for a company's unique software and apps development to access all the cloud service layers. This, in turn, can lead to an in-house development team, programming bespoke applications for the company workforce.

```
    ga.async = true;
    ga.src = ("https:" == document.location.protocol ?
    var s = document.getElementsByTagName("script")[0];
    s.parentNode.insertBefore(ga, s);
  })();
</script>
<?php
  if (is_singular() && get_option("thread_comments")) {
    wp_enqueue_script("comment-reply");
  }
?>
<?php wp_head(); ?>
</head>
<body <?php body_class(); ?>>
  <div id="header">
    <div class="wrapper">
      <h1>
        <?php if (is_front_page() && $paged < 2) : ?>
          <img src="<?php bloginfo(
        <?php else : ?>
          <a href="/" title="Root"><img src=
        <?php endif;?>
      </h1>
      <form id="search" method="get"
        <div>
```

EXPANSION AND GROWTH

If a company expands rapidly, a hybrid setup can easily cater to its growing needs and demands; the technology is in place and ready to be utilised. However, that can have a costly negative effect should the company's growth decline.

me for expansion

USE LEGACY HARDWARE

A company using both cloud models, as well as an in-house approach, can make some cost savings by not having to update its hardware as frequently. You can utilise the power of a private cloud, and the storage of a public cloud, while still keeping your legacy hardware in use.

GREATER ACCESSIBILITY

A hybrid cloud setup joins all the aspects of the company's technology - in-house, private and public clouds. A remote worker, therefore, can get to any layer of the technology, or just one aspect of it, should they need to. Increased firewall access also bolsters security.

DISASTER RECOVERY

Although a hybrid cloud setup can be quite costly, there's usually a far better disaster recovery plan factored into that initial expenditure. Your in-house servers can be backed up to the private cloud, and non-sensitive data in the public cloud, to ensure that your data is always recoverable.

STOP | START
DISASTER RECOVERY PLAN

GREATER PERFORMANCE

Having your apps and data in-house means you're able to call them up faster than when they're stored in a cloud. A hybrid setup usually has better network support and utilises faster, higher-performing hardware to get the most from the in-house and cloud layers.

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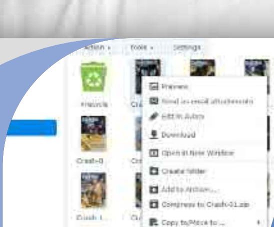
Setting Up Your Own Cloud

Learn how to build and set up your own Cloud storage solution using off-the-shelf hardware and free software.



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How to Set Up a Cloud Using a Home NAS

Use a NAS unit to create your own personal Cloud service and even access it from outside the home.

computing
infrastructure
platform
storage
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data
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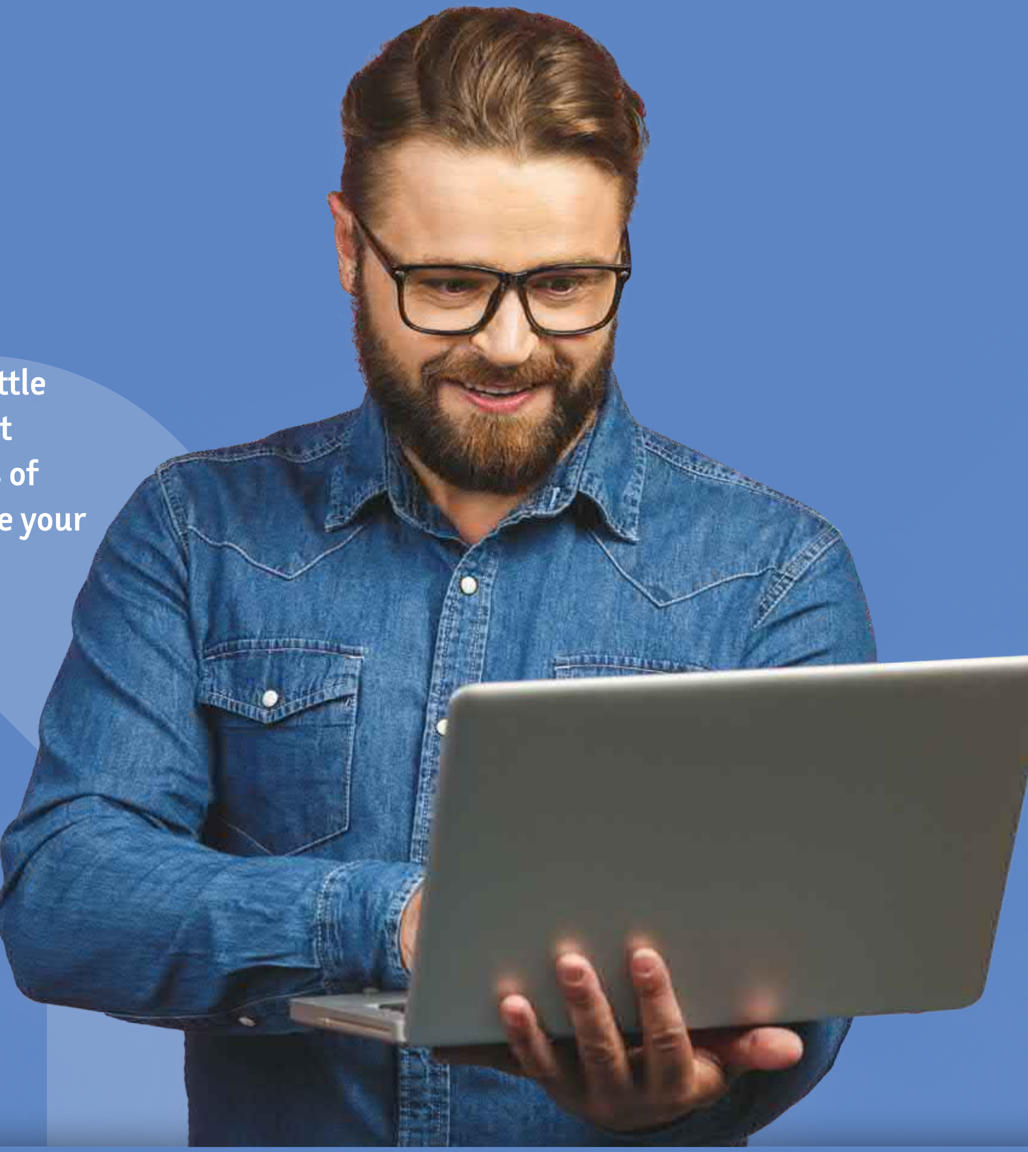
Glossary of Cloud Terms

Confused by Cloud terms and acronyms? We have that covered with a handy glossary.

DIY Cloud



If you want something a little more personal, or you don't fancy paying for terabytes of storage, then why not make your own cloud?

Surprisingly, making your own cloud isn't as difficult as you'd first imagine. There are plenty of options available and, thanks to modern storage devices, implementing a home, or business cloud from your desktop can be done with very few steps.

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Why Would You Consider a Do It Yourself Cloud?

While using one of the many services available is perfectly fine, a small business or home user may want a little more than the service is offering. That little extra could come in the form of far more space without monthly payments or complete control over the cloud contents.

YOUR VERY OWN CLOUD

In such circumstances, having your own cloud is preferable to that of using one of the current solutions. A home user, for example, can set up their own cloud with the computer hardware they already own; making it available for friends and family to access, or just for their own private use.

Likewise, a business can opt for their own cloud, again using available computer hardware connected to the company's router and providing as much storage as needed for home workers, or those on the road.

Taking a few points into consideration here, let's see what advantages and disadvantages a DIY cloud can offer both the home and SMB user:

SECURITY

A DIY cloud may not have the backing of the likes of Google; however, it is going to offer a secure environment for you and any employees to access the content. It's not often that a home user or a small business is targeted by a legion of international hackers, whereas the big cloud names are probably running a constant battle with nefarious forces attempting to gain access to any of its cloud users' contents.

PRIVACY

To link the security aspect of the cloud, a DIY cloud offers a higher degree of privacy. Mainly due to the simple fact that you own the space, it's your storage so you can populate it with whatever you want. When it comes to privacy, some cloud providers may well be limited, for various reasons, controlling a DIY cloud, gives you considerably more freedom.

COST

The initial cost of setting up your own DIY cloud may be a factor worth considering. If you've any computer hardware going spare, such as a motherboard, processor, memory, hard drives, case and so on, you're able to use them to build your own cloud server. If you don't have the kit to hand, then you'll need to buy them in. It needn't be particularly expensive; refurbished computers work just as well as ones that cost thousands. Incidentally, you're able to create a Raspberry Pi cloud with the right components.

SETUP

Although most folks are more technically savvy than they think they are, setting up a DIY cloud can be a somewhat complex affair. Thankfully, there are easy to use apps and programs, available for a range of operating systems, that help make the process simpler – especially when compared to the previous procedure for setting up an online, available storage solution.

MAINTENANCE

Once you've setup your DIY cloud there's very little needed to keep it running. However, beyond the core cloud software, the computer on which it's set up will, inevitably, require operating system updates, the occasional reboot and, from time to time, some TLC. Updates can have a reputation for 'breaking' some feature further down the line, which can be costly when that feature has something to do with your DIY cloud setup.

DISASTER RECOVERY

One thing to be especially aware of is that using your own DIY cloud eliminates the disaster recovery protection you'll get through an average cloud service. If something goes wrong with a cloud service provider, generally, your files are still safe within the company's backups. Should your house or business ever fall foul of something disastrous, let's hope not, then losing your DIY cloud will effectively lose all your cloud data. You'll, therefore, need to factor in another level of backup and disaster protection.

RAINY-DAY PROJECTS

Despite the few disadvantages, building your own DIY cloud covers the 'interesting project' and 'worthwhile addition to the company' scenarios quite interestingly. Perhaps a compromise for the business owner, then, where a DIY cloud setup suits one section of the business - the road warriors - while still giving access to the on-site workforce.

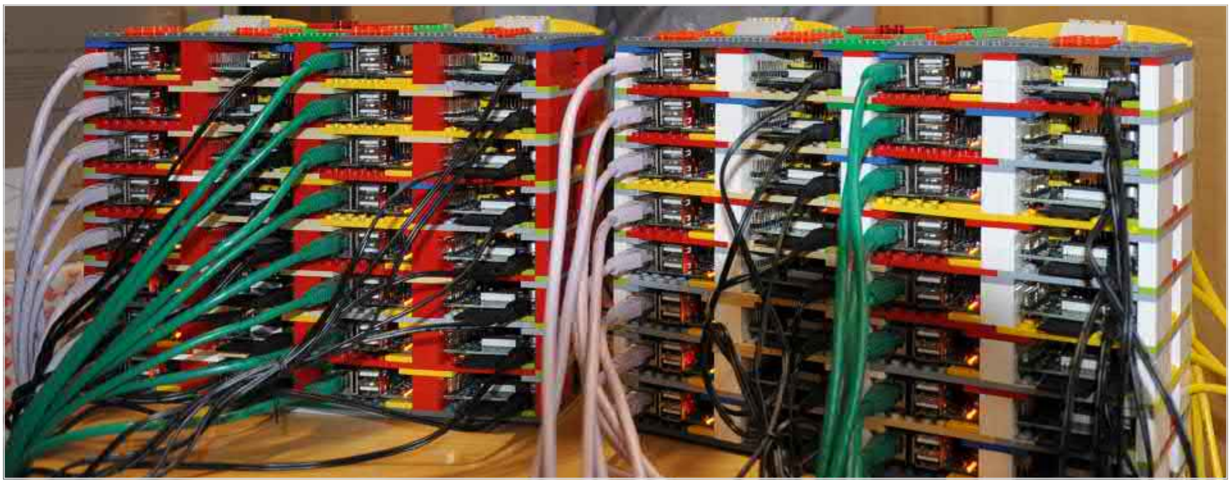
For the homeowner, imagine being able to retrieve your music, movie, and photo collections from any Internet-connected device, and offering that level of access to the family members living on the other side of the planet. It certainly makes for a tantalising, rainy day project.

IS IT DIFFICULT TO SET UP?

It's all very well talking about the benefits of a DIY cloud setup, but in real-world terms, is it a mammoth project that'll require intricate IT skill levels?

A short, simple answer to the above question: no. Yes, you need some IT skills. Knowledge of how to install an operating system and any third-party software, is certainly advantageous. However, you needn't be a computing guru to set up a DIY cloud service; it's not something that takes up too much time either. Within an hour, you can be up and running and hosting your own cloud.

A DIY cloud needn't be an ultra-powerful spec PC. Cobble your left-over hardware together and see what you can make.



A Raspberry Pi and LEGO cluster of servers, perfect for the DIY cloud project builder.

Setting Up Your Own Cloud

If the thought of building your own cloud storage setup doesn't intimidate you, then you're in luck. However, there are plenty of solutions available, utilising a variety of components and hardware, all achieving some excellent results.

If you're interested in making a cloud storage solution at home, or the office, then you'll need to factor in a few elements first. Some work better than others; some can be quite tedious to set up and get going, whereas others are really very simple. Either way, here are some examples of what you'll need to begin.

COMPUTER

A fairly obvious component, in this case. The computer itself doesn't need to be the most powerful PC available, so don't go spending thousands on a new PC for a cloud at-home project. Nevertheless, you are going to need a few extra components to make it work better.

STORAGE

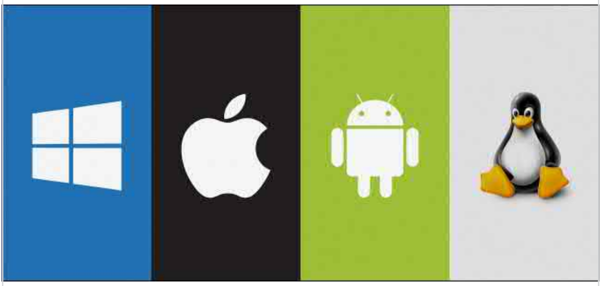
Inside the computer, you're going to need ample storage for you, and your friends and family if you want, to which content is uploaded. You can, of course, use a single hard drive, perhaps up to 500GB, and partition it into two sections: one for the computer's operating system, the other as the cloud storage partition. Use around 160GB for the operating system partition, and the rest dedicated to the cloud partition. Alternatively, you could opt for a smaller hard drive for the operating system and a second, much bigger capacity, hard drive for the cloud storage. This way, you could potentially have terabytes of cloud storage available to whomever you include in the access list.

MEMORY

Although you won't need a huge amount of memory (or RAM), it's worth trying to get as much as possible. Accessing storage on a remote PC, as in this case a DIY cloud, doesn't require much memory but the software that controls the cloud access, sharing and everything else, may. If a regular PC has 4 or 8GB of memory, then look to installing 12 or 16GB. That should cover you for the overhead of hosting the cloud storage and any extra software to get it all up and running.

OPERATING SYSTEM

Binding all the hardware together is the operating system or OS. The software you use to create and host the cloud storage depends on the OS you've got installed on the computer. For example, Windows-based cloud software such as ownCloud Server work on Windows, Linux and macOS, but it's considered more stable on Windows and macOS systems. Nextcloud, however, another cloud server app, only runs on Linux-based systems. Most users are familiar with Windows, so it makes sense to stick to that, especially if you've never used Linux or don't own a Mac. Using an unfamiliar OS, only increases your learning curve and workload.

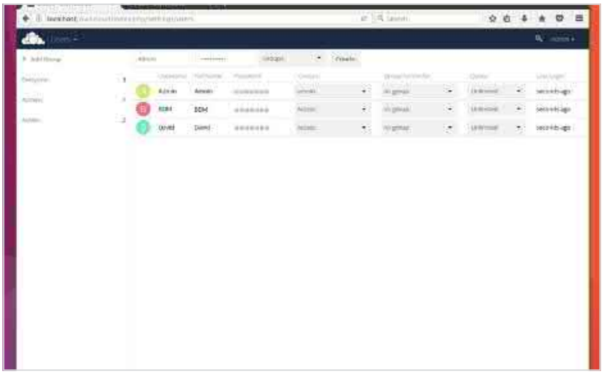


RASPBERRY PI

The Raspberry Pi makes for a great little cloud storage setup. With its small footprint and relatively low power use, you can happily have your Pi set up and running all day, every day. You don't need to opt for the new, 4GB Raspberry Pi 4; however, the extra memory and added processing power ensures the cloud server is running well. If you've got an older Pi 3 model, then it doesn't take long to install a PI NAS Drive, or something similar, and begin using it to host your cloud storage. However, you will need to include an external hard drive for increased capacity. The Pi's use an SD card as the main system drive and there's not a lot of space available on those things - plus it's not ideal to host cloud storage on an SD card. An external hard drive will be slower than the hard drive fitted directly to the inside of a computer, but if you're not too bothered by slight lag when reading and writing, it's a project worth considering.

CLOUD SOFTWARE

This is where things begin to get interesting. There are lots of cloud server software solutions available for all the leading operating systems. However, although they all do pretty much the same job, some do it better than others. Most of the time it comes down to personal taste, as one user may enjoy the interface of one piece of software over another, despite both offering the same features. Some cloud software models are faster but can be a pain to set up and maintain. Others are very simplistic, and there's not much help online should something go wrong. It's, therefore, a good idea to pick a few and install and use them, to see how they operate and how easy they are to keep working over time. Once you've picked the one you like, remove the others and give it a try for a couple of months, to work out all the bugs and nuances it may have. Check out the Cloud Software List boxout for some suggestions to get you started.



MONITOR, KEYBOARD AND MOUSE

You need a monitor, keyboard and mouse, to begin with, to set up the cloud server software and make any changes to the operating system. But once you've set everything up, you can easily install a remote viewing server that allows you to connect to the cloud server's desktop from another computer. This way, you can do away with the monitor, keyboard and mouse, and place the computer, or Raspberry Pi, in a more suitable location. Keep the peripherals handy, though, as you may need them for maintenance and updates.

CLOUD SOFTWARE LIST

Here's a list of some our favourite cloud server software examples:

- **ownCloud (https://owncloud.org/)**
  One of the best examples of cloud server software. There's plenty of features, and it can be set up simply or with some complexity, depending on your skill levels.
- **Resilio sync Home (https://www.resilio.com/individuals/)**
  A good, free cloud, share and sync server software. Not quite as feature-rich as ownCloud, but simple to use and effective.
- **Seafile (https://www.seafile.com/en/home/)**
  Seafile is an open-source file sync & share solution designed for high reliability, performance and productivity; Sync, share and collaborate across devices and teams, it's easy to use and looks good too.
- **Cozy (https://cozy.io/en/)**
  Cozy Cloud is a smart digital home solution.
- **Nextcloud (https://nextcloud.com/)**
  A comprehensive and powerful cloud server that only runs on Linux systems. It can be a complicated setup, and there's a lot you can do with Nextcloud, but if you want to increase your skills, this is the one for you.

Virtualisation for the Consumer

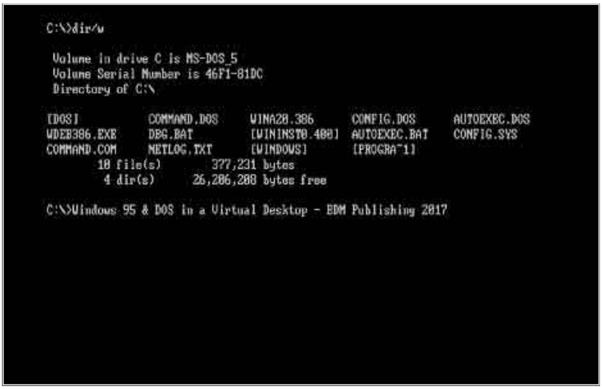
Virtualisation in the cloud, also known as Virtual Desktop Infrastructure (VDI), is a technology that allows users access to an entire operating system. The operating system is an image, naturally, housed on a cloud server, where you can work on the desktop as if it was installed locally on your computer.

DESKTOP ANYWHERE

What are the advantages of setting up or using a cloud-based virtual desktop, then? As it happens, here are ten examples of where a VDI will help you out.

RUN LEGACY PROGRAMS

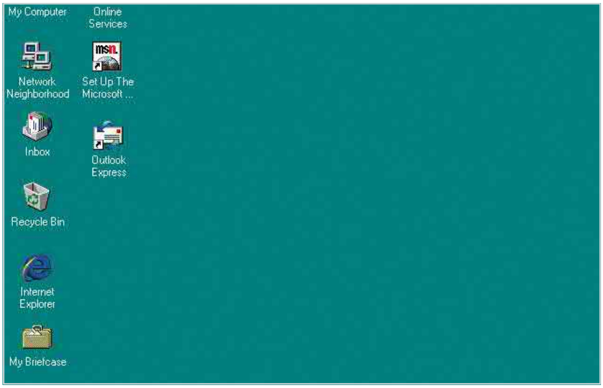
One of the advantages of running a virtual desktop in the cloud, is the ability to execute old programs and apps in the operating system environment for which they were designed. For example, running a DOS 6.22, or Windows 95 virtual desktop in the cloud allows you to play all those DOS classic games and programs.



```
C:\>dir/w

 Volume in drive C is MS-DOS_5
 Volume Serial Number is 46F1-81DC
 Directory of C:\

[DOS]           COMMAND.DOS     WINA20.386      CONFIG.DOS      AUTOEXEC.DOS
WDEB386.EXE     DBG.BAT         [WININST0.400]  AUTOEXEC.BAT    CONFIG.SYS
COMMAND.COM     NETLOG.TXT      [WINDOWS]       [PROGRA~1]
        18 file(s)        377,231 bytes
         4 dir(s)      26,206,208 bytes free

C:\>Windows 95 & DOS in a Virtual Desktop - BDM Publishing 2017
```

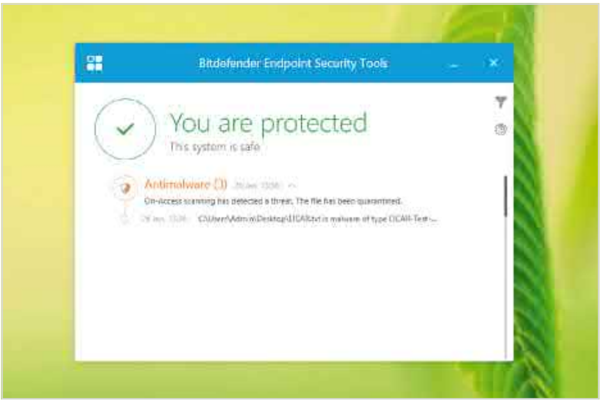
SANDBOX ENVIRONMENT

A virtual desktop is what's known as a sandbox environment. Meaning it's a virtual space where new, untested, or untrusted software and coding can be executed without fear of it damaging the host PC. You're also able to browse securely as your personal data isn't on the VDI.



VIRUS TESTING

If you think a downloaded file from a website may contain a virus, you can safely experiment with it in a virtual desktop in the cloud. This way your actual PC isn't going to be infected, and, thanks to the fact that the VDI is simply a file on a server, it's scanned and cleaned too.



You are protected

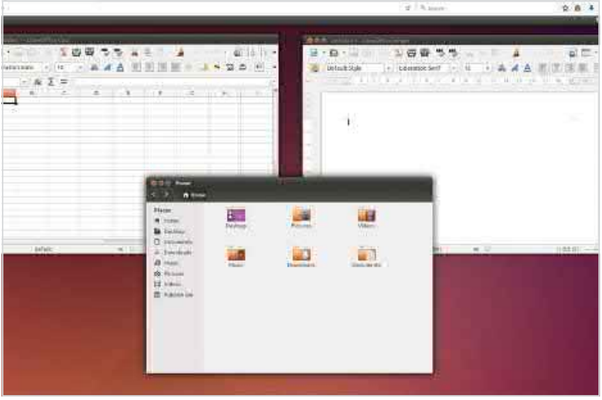
This system is safe

Antimalware (3)

On-access scanning has detected a threat. The file has been quarantined.

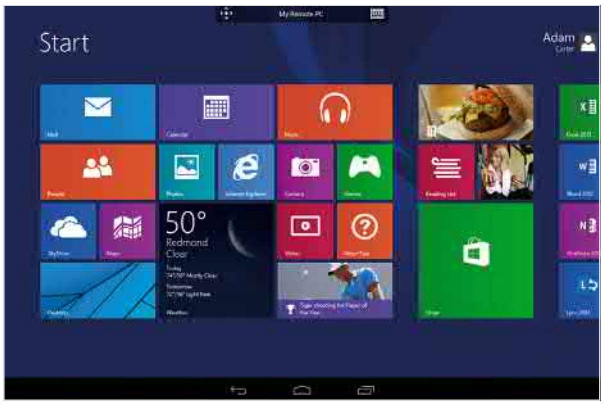
USE OTHER SYSTEMS

As expected, you're able to use and test other operating systems within a virtual environment. The handy thing here, on the cloud, is that your local system's storage isn't being used to hold the virtual desktop image.



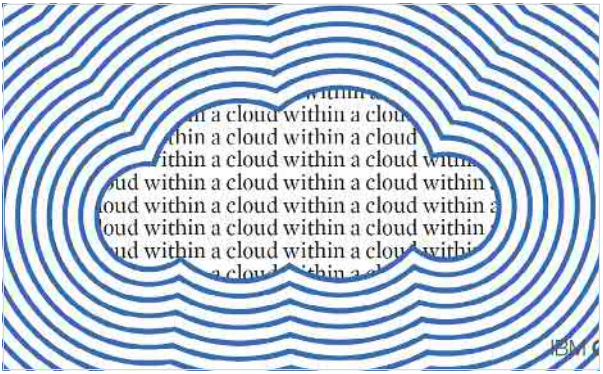
REMOTE WORK

Let's take a common scenario: while on holiday, you suddenly need to do some work. Using a virtual desktop in the cloud gives you access to a fully working computer, so you can complete what you need to while sharing it with others.



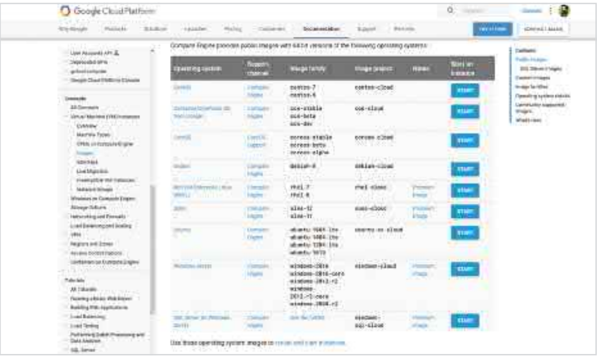
CLOUD SETUP

Oddly enough, if you've access to a cloud-based virtual desktop then you can set up your own cloud server within the, already cloud-hosted, virtual environment. This way, you can create secure tunnelling for the users to access the cloud, and have everything hosted remotely.


a cloud within a cloud within a cloud within
IBM

BACKUPS

Having a secure backup is always a good idea, even for a home user. Utilising a cloud-based virtual desktop is undoubtedly one way to achieve that goal. You can, with some examples and services, create an exact copy of your locally installed operating system in the cloud; so it's always backed up and ready for a quick restore.



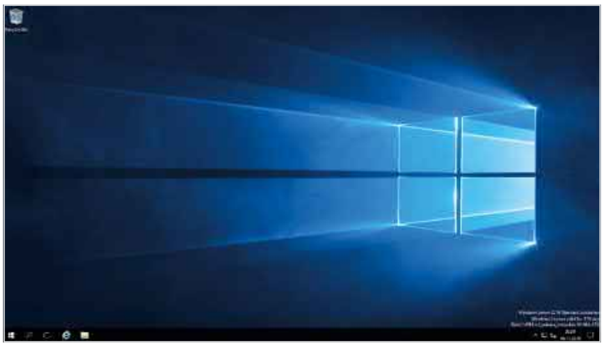
CUTTING COSTS

If you need to access multiple desktops, the initial costs in terms of hardware, software licensing and time to set everything up - not counting a backup routine or anti-virus support - can be high. You can, alternatively, opt for a hosted virtual desktop platform, with multiple desktops available for as little as £25 per month.

Hosted Desktop UK
Security
Welcome to Hosted Desktop UK Limited.

SKILLS IMPROVEMENT

It's a tricky business being able to keep up with the latest technology and software, and more often than not, expensive. Not all of us can test and get to grips with the latest version of Windows Server, for example. Here, a cloud-based virtual desktop allows the public to test, and experience the latest software.



USE OLDER HARDWARE

As you're accessing a virtual machine online, there's little need to fork out for a £2000 computer. While you probably won't be able to run complex 3D imaging, or the latest graphically demanding game on a cloud-based virtual machine, you can use it for everyday work without needing to buy a new computer.

Virtualisation for SMB/SME Users

Virtualisation for the home user is certainly beneficial, in some respects. However, virtualisation in the cloud for the business user can be a far more powerful tool. Cost savings, remote working, support and security are all achievable with a hosted, virtual cloud desktop service.

DESKTOP AS A SERVICE

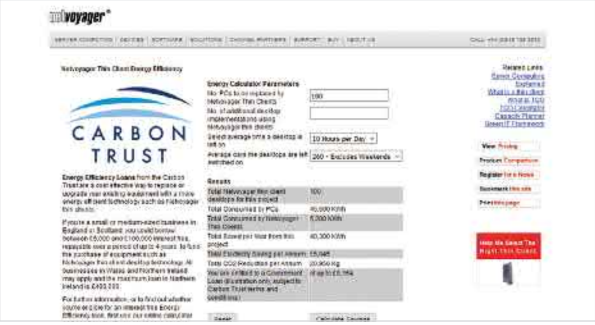
For business, many of the benefits of virtualisation in the cloud cross over with those of the home user; however, for a business, those benefits can yield great advantages over the competition.

REMOTE WORKING

Remote workers can help make substantial savings across the entire business. You don't need to provide office space, or the power costs therein, and you can reduce software and hardware costs. Aside from these savings, your workers can access their desktops from anywhere in the world.

REDUCED BILLS

Looking again at cost-cutting, using a virtual desktop to access multiple, non-identical operating systems lets you install Thin Clients, as opposed to full PCs. A Thin Client can access the remote desktop, and work as a normal computer, but with an estimated £70 saving per machine annually in electricity.

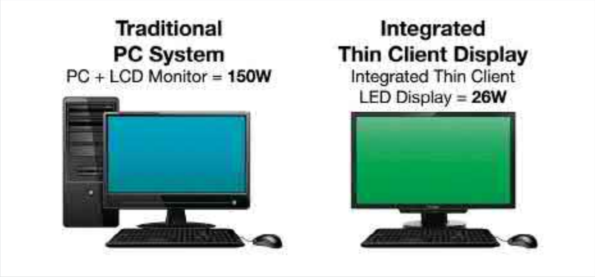


EASIER SUPPORT

Using a virtual desktop hosting service ensures that you receive the highest possible support, 24/7, without the need to have an extensive in-house IT team. Any issues with the virtual desktop setups are quickly resolved, and broken images easily replaced with a previous snapshot.

ENVIRONMENTAL SAVINGS

Further to the last entry, using Thin Clients to replace a PC, and accessing a virtual desktop service, produces a CO2 reduction of 20,956KG per year, and a total energy saving cost of 40,300 KWh - based on 100 NetVoyager Thin Clients replacing PCs.



VIRUS PROTECTION

A virus hitting an individual home user is bad enough; however, when one gets loose in a company, it can be disastrous. Using a virtual desktop service greatly reduces the chance of a virus spreading through the company network and other PCs.

Virus
Detected!

BACKUP PROTECTION

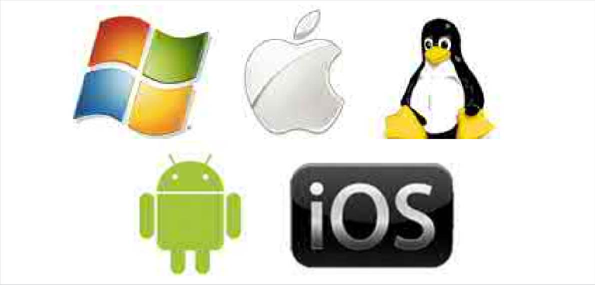
Workers using a virtual desktop can quickly recover from any disaster by restoring a recent snapshot of their desktop. The downtime, therefore, for a 'broken' virtual desktop is minimal compared to that of a standard, in-house desktop restore.

SECURITY

A business that uses virtual desktop services is also better placed to secure the desktops it's offering. You're able to fine-tune the security settings so workers can't access unnecessary websites, or run illegal copies of software. This is all possible on a traditional in-house setup too, but much easier for the virtual desktop service to set up and utilise.

MULTIPLE OPERATING SYSTEMS

It's often difficult for a business to merge all its departments and users' operating system needs. Marketing and design require Macs, office staff PCs, and developers may want Linux, PCs, Macs or even mobile operating systems. With a virtual desktop service, you can specify, and use, all the available operating systems across your entire business.



SCALABILITY

As with most cloud service offerings, you're able to easily scale up or down your virtual desktop numbers as your business demands increase or reduce. New workers are quickly added, and allocated a virtual desktop, while former workers or contractors can be removed to save bandwidth and support costs.

LEGACY APPS

As with the home user, a business can use a virtualised older desktop operating system to keep supporting its apps and software. If you've already paid for a piece of software which a new operating system won't support, then using a legacy system, within a cloud virtual desktop setup, will keep you up and running.

LS-1.00 Plus Calculator
76821
Copyright 1990, LSRGroup.
Operation Indicators
Deg
Float
<•>98
<x>87
ARC
Exc
Rcl
Sto
CE/CL
HYP
SIN
COS
TAN
Sleep
Exp
(
)
End
D
E
F
1/n
A
B
C
×
Log10
7
8
9
Log e
4
5
6
Log n
1
2
3
0
.
+/-
=
Stuff
Hist
Lpt
File
Table
Perm
Comb
Deg
Rad
Grad
Float
Bin
Oct
Dec
Hex
Fix
Compx
Stats
Date
Time
Z:\>SET
Drive C
Z:\>c:
C:\>LSR

Using a NAS Drive as a Cloud Server

While creating your own cloud server is a great solution to an online offering, it's not always practical, secure, cost-effective, or easy to manage. NAS, Network Attached Storage, drives are a far better solution. They're small, efficient and powerful units designed to store and share data.

NAS BENEFITS

NAS technology has come a long way in the last few years. No longer the monolithic boxes dominating the room, in fact, they're now quite discreet, media-type installations hidden away in the corner of a living room or office.

They are remarkably powerful these days too. With specifications that surpass those of a top of the range PC from not so long ago, a modern NAS is a far more capable 'computer' than some of the PCs found on desks. This improved processing power allows more services to be run simultaneously, and with support for more users.

In terms of service and software, many modern NAS units run a customised version of Linux, which serves as the backbone to their file and media sharing capabilities. There's also a range of installable apps that can further improve the scalability and use of a NAS, such as cloud server software, for example.

COST

A NAS drive is a reasonably inexpensive investment for both home and business users. A single bay, which means a NAS unit with space for a single hard drive, can be picked up for well under a hundred pounds. Dual bay, two hard drive capable, NAS units can be around the hundred-pound mark. The only expense is the actual hard drives you buy to install within the NAS unit. Therefore, depending on the capacity hard drive you require, and how many, you could be looking at anything from £40 up to £400.

PERFORMANCE

A NAS drive, by this we mean the entire unit and the hard drives within, has a reasonable set of specifications. You can easily expect to see dual or quad-core processors, gigabytes of memory, high performance read and write speeds and gigabit Ethernet ports. In general, a NAS will outperform a similar specified PC, at the same file serving duties, due to its low memory use operating system and the limited number of processes the hardware is required to run; freeing up a lot of resources for its sharing duties.

A consumer NAS is just as capable as a business model, it depends on what capacity you want.

STATUS
LAN
DISK 1
DISK 2
Synology
DS216play

Businesses who want ultra-scalability can opt for enterprise level NAS solutions, with 24 drive bays possible.

VIRTUALISATION

We've already looked at the benefits of virtualisation for home and business users. If finding a virtual desktop hosting solution isn't working for you, then a NAS drive may be a good alternative. Some NAS drive manufacturers have implemented a virtualisation app that can be downloaded and installed to the NAS, which, when set up correctly, will serve the user base with a variety of virtual desktop images.

BACKUPS

NAS drives aren't useful for merely sharing your media. With the right setup, all your desktop computers, regardless of whether you're an individual or a business, can be backed up to a NAS. You can even store multiple backups across days, weeks, or months if you have enough storage available.

THE IDEAL SOLUTION

A NAS is an excellent one-stop solution for any type of user. An individual can house their media collection, family photos and data backups on a NAS, while using a cloud app to host photos and music to other family members.

A business user can use multiple NAS units to backup, provide cloud server access and virtualisation to the workforce, and all from an inexpensive and easily manageable box.

CLOUD SERVING

Naturally, using a NAS as a cloud server is a great solution. You can utilise the huge capacities of the installed hard drives, up to 10TB, while offering the users an easy to connect and use cloud solution. Most of the NAS drives also offer a simple management setup, allowing even non-technical users the chance to get up and running with their own cloud within a matter of minutes; and often without the security hassle of opening up a hole in the router and firewall.

REDUNDANCY

Dual bay, or more, NAS drives offer the user a set of RAID (Redundant Array of Independent Disks) options with the installed drives. A RAID setup simply offers different kinds of configurations or levels. Each of these levels can implement a different type of redundancy. For example, RAID 1 offers data mirroring, so any data written to one drive is mirrored by the second. This way, should one drive fail, you can replace it and rebuild the data from the other one. Depending on the RAID level, you either lose some or use all of the drive(s) capacity installed. Two 10TB disks at RAID 1 only allow you to use 10TB, as the other drive is the mirror.

Mostly though, an SMB will be more than satisfied with just as powerful NAS drives, offering more than ample capacity.

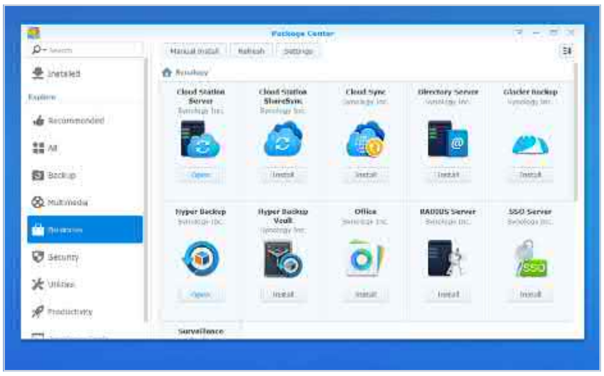
How to Set Up a Cloud Solution Using a Home NAS

Creating your own NAS-based cloud server is remarkably easy, thanks to the modern operating systems and apps available for a NAS drive. In this example we're going to use a Synology NAS fitted with a pair of 6TB Seagate IronWolf hard drives.

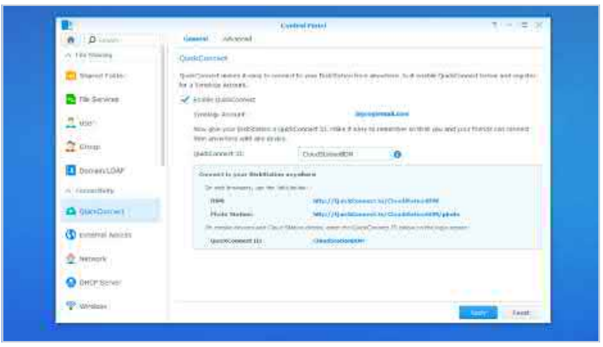
CREATING YOUR CLOUD

We've pre-fitted the two IronWolf drives, and run through the initial setup process. Note: changes to NAS firmware and the OS can result in different screens from shown below.

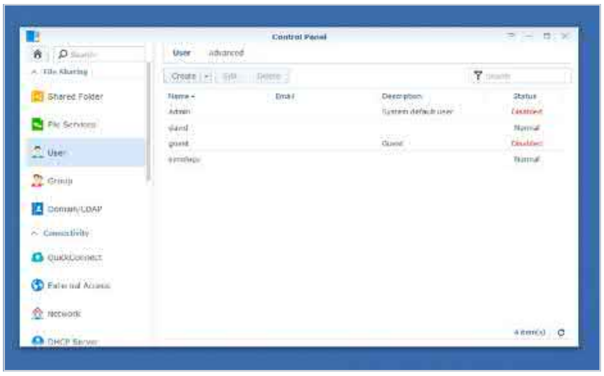
STEP 1 First we need to install the Cloud Station Server from the **Package Center**, located on the DSM desktop. In the Package Center, you'll find the **Cloud Station Server** app in the Business section. Click on Install and agree to allow the new app to install on your Synology NAS.



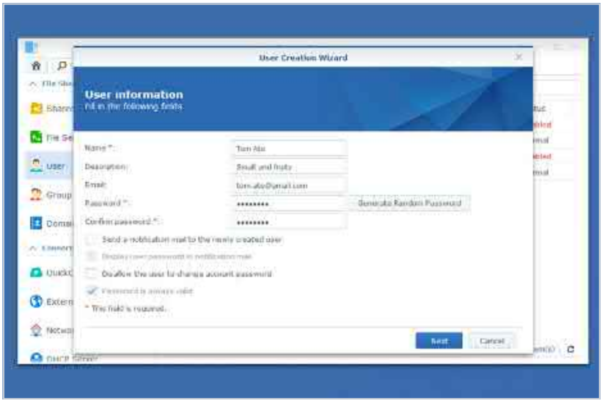
STEP 2 Open the Control Panel from the DSM desktop, and scroll down the side panel until you come to **QuickConnect**. Click the **QuickConnect** link, and in the right-hand main pane, tick the **Enable QuickConnect** box. You'll need to enter your email and sign up for a Synology account, but QuickConnect allows a connection to the cloud server without opening your router.



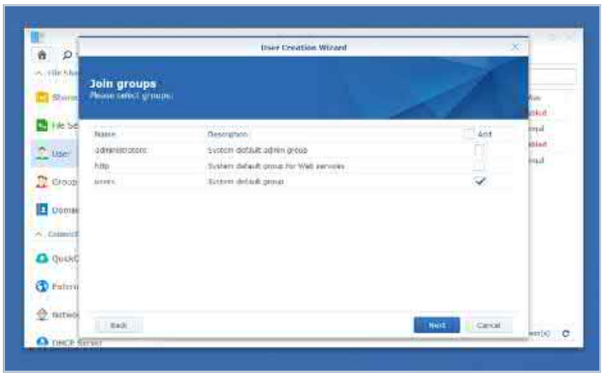
STEP 3 With QuickConnect enabled, and once you've confirmed the new account with Synology (via an email sent to you), click the **Apply** button in the Control Panel. Scroll up a little way in the Control Panel until you come to **User**, and click on it. The right-hand pane of this section will detail the current accounts with access to the NAS.



STEP 4 To create a new user, click on the **Create** button, and fill in the form detailing Name, Description, Email, and Password. You can tick the boxes to send the user an email to inform them of their new account. Click the **Next** button when you're done.



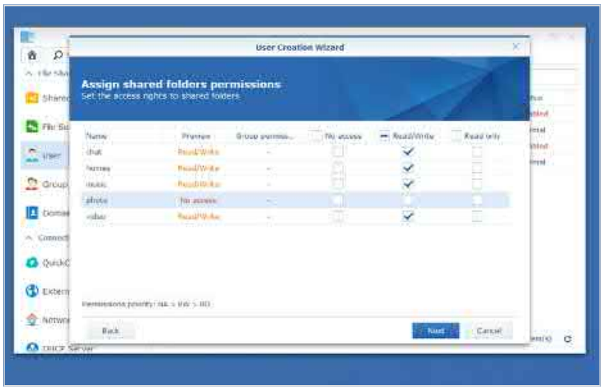
STEP 5 The next page will list the current groups you have active on the NAS. For the average consumer sticking with the built-in Users group is more than sufficient, but try and limit the number of Administrators to just yourself. Click **Next** when you're ready to continue.


User Creation Wizard
Back
Next
Cancel

Join groups
Please select groups:

Name	Description	Add
administrators	System default admin group	☐
http	System default group for Web services	☐
users	System default group	✓

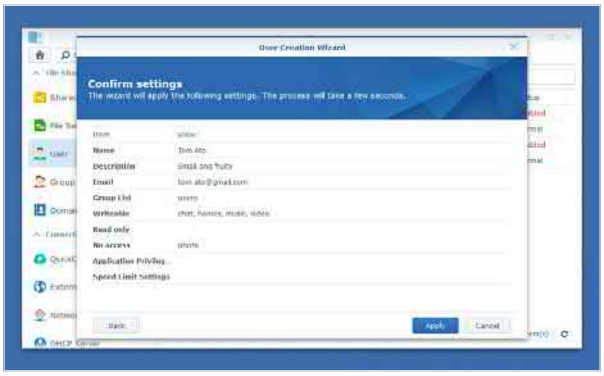
STEP 6 The built-in shared folders within the NAS are: Homes, Music, Photo and Video. In the next page you're able to select the type of permission the new user will have to each of those folders. Don't worry too much about the shared files, as you'll create one in a moment. Click **Next** when you're ready to continue.


User Creation Wizard
Back
Next
Cancel

Assign shared folders permissions
Set the access rights to shared folders

Name	Preview	Group permiss...	No access	Read/Write	Read only
chat	Read/Write	-	☐	✓	☐
homes	Read/Write	-	☐	✓	☐
music	Read/Write	-	☐	✓	☐
photo	No access	-	☐	☐	☐
video	Read/Write	-	☐	✓	☐

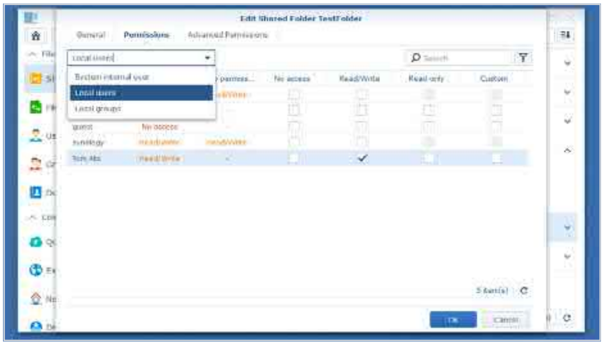
STEP 7 The remaining steps cover the disk quota allowed for the new user, and the application access they'll have. You can assign permissions beyond the default if you like, or return later to redefine the permissions. When you've finished with the quotas and assigned apps, click the **Apply** button to create the new user.


User Creation Wizard
Back
Apply
Cancel

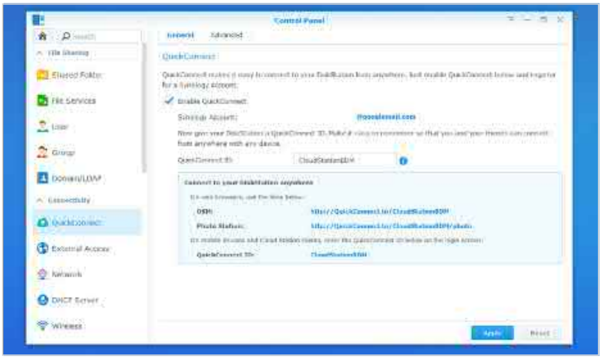
Confirm settings
The wizard will apply the following settings. The process will take a few seconds.

Item	Value
Name	Tom Alo
Description	[illegible]
Email	[illegible]
Group List	users
Writeable	chat, homes, music, video
Read only	
No access	photo
Application Privileg...	
Speed Limit Settings	

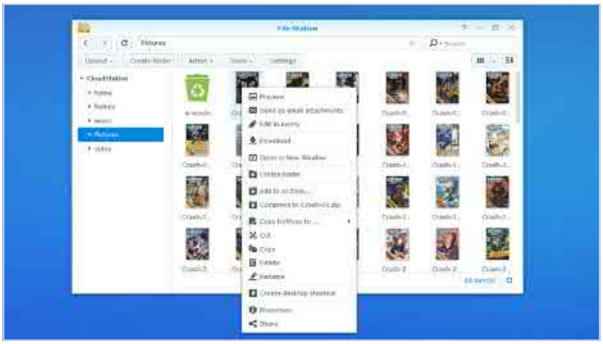
STEP 8 Still within the Control Panel, scroll up to **Shared Folders** and click the **Create** button. Enter a new name for the cloud-accessible new shared folder, and a Description and click **OK** to create the folder. On the next screen you're able to assign permissions to the new User or Groups; adding the group permission saves you adding individual users.


Edit Shared Folder TestFolder
General
Permissions
Advanced Permissions
Local users
System internal user
Local users
Local groups
No access
Read/Write
Read only
Custom
OK
Cancel

STEP 9 With an example user and shared folder created, we can now attach to the cloud server using the QuickConnect app. For outside users to gain access to the NAS, you'll need to inform them of the QuickConnect address, which is listed on the QuickConnect app page. It'll be h**ttp://QuickConnect.to/NAMEOFNAS**, where **NAMEOFNAS** is the QuickConnect name you setup.


Control Panel
General
Advanced
QuickConnect
Enable QuickConnect
Apply
Reset

STEP 10 Once the user has entered the address, they'll be taken to the DSM page where they'll enter their NAS login details. They'll have access to a customisable DSM desktop similar to the one used as the NAS admin. Clicking on **File Station**, they'll be able to upload, download, view and share any content they have permission to on the NAS.


File Station
Pictures

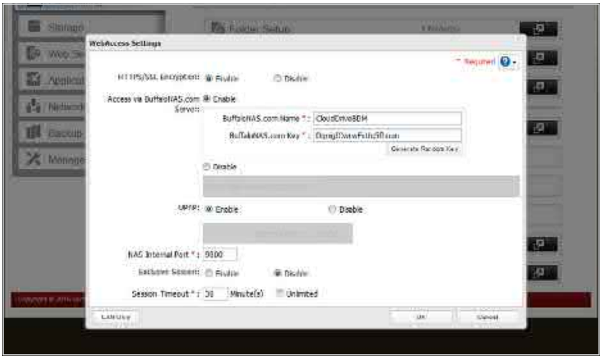
How to Set Up a Cloud Solution Using a Business NAS

Setting up a cloud server on a business NAS is very similar to that of the home NAS user. The web-based administration of a NAS drive makes it incredibly simple to configure and use. In this example, we're using a Buffalo TeraStation.

CREATING YOUR CLOUD

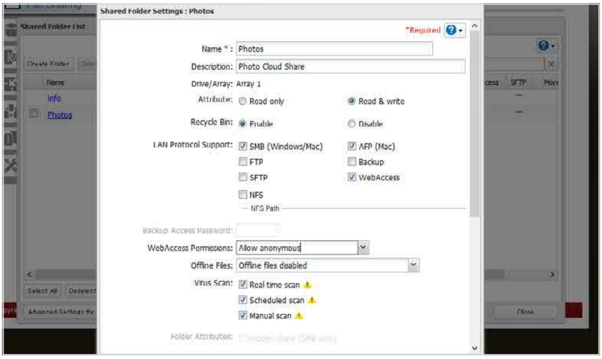
The Buffalo TeraStation we're using is updated to the latest firmware and has cycled through the initial set up process. Note: Changes to models can alter the screenshots and steps below.

STEP 1 Log in to the Buffalo TeraStation admin page. When loaded, click on the **File Sharing** link in the left-hand sidebar, followed by the link button to the far right of the **Web Access** entry. Enable HTTPS/SSL Encryption, enable Access via BuffaloNAS.com, click the **Generate Random Key** button, and enter a name for the cloud server in the BuffaloNAS.com Name box



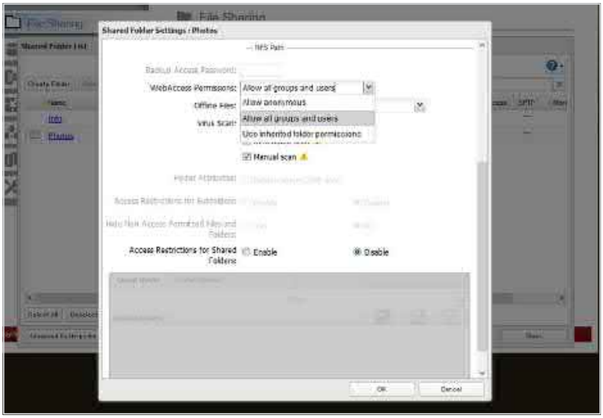
WebAccess Settings
HTTPS/SSL Encryption: ● Enable ○ Disable
Access via BuffaloNAS.com Server: ● Enable
BuffaloNAS.com Name *: CloudDriveBDM
Generate Random Key
○ Disable
UPnP: ● Enable ○ Disable
NAS Internal Port *: 9000
Session Timeout *: 30 Minute(s) ☐ Unlimited

STEP 2 Once you've named the cloud server, click **OK** to save the details. Still in the File Sharing section, click on the **Folder Setup** link button, located at the top of the screen. In the Shared Folder List window, click **Create Folder**, and when the Shared Folder Settings window appears, enter a name for the folder and tick **WebAccess**.



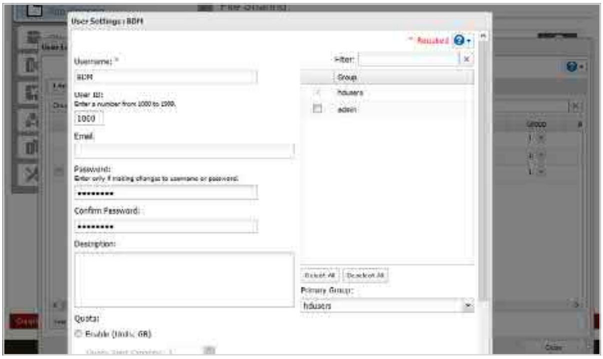
Shared Folder Settings : Photos
Name *: Photos
Description: Photo Cloud Share
Drive/Array: Array 1
Attribute: ○ Read only ● Read & write
Recycle Bin: ● Enable ○ Disable
LAN Protocol Support: ☑ SMB (Windows/Mac) ☑ AFP (Mac) ☐ FTP ☐ Backup ☐ SFTP ☑ WebAccess ☐ NFS
WebAccess Permissions: Allow anonymous
Offline Files: Offline files disabled
Virus Scan: ☑ Real time scan ☑ Scheduled scan ☑ Manual scan

STEP 3 Scroll further down and you'll see a heading WebAccess Permissions. Click the pull-down box and select **Allow all groups and users** from the list (you're stopping anonymous access from entering the cloud folder). Click the **OK** button when you're done.



Shared Folder Settings : Photos
WebAccess Permissions: Allow all groups and users
Allow anonymous
Allow all groups and users
Use inherited folder permissions
☑ Manual scan
Access Restrictions for Shared Folders: ○ Enable ● Disable

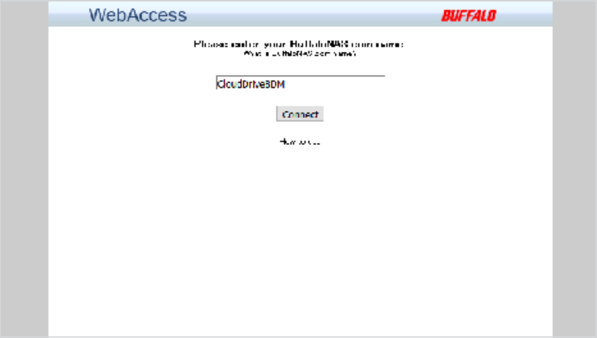
STEP 4 Close the Shared Folder List window, and click the link button next to **Users**. In the User List window, click the **Create User** button. Enter a name for one of your users and a password. You can set a unique User ID if you wish, and any storage quotas. Click the **OK** button when you're done.



User Settings : BDM
Username: * BDM
User ID: Enter a number from 1000 to 1999. 1000
Email:
Password: Enter only if making changes to username or password. •••••••••
Confirm Password: •••••••••
Description:
Group: hdusers, admin
Primary Group: hdusers
Quota: ○ Enable (Units: GB)

STEP 5

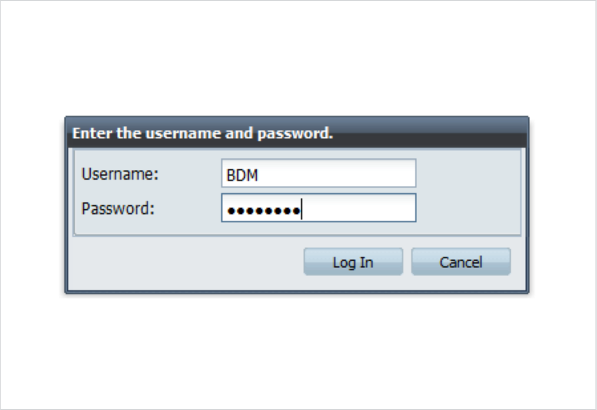
Click the **Close** button to exit from the User List. Open a new browser tab, or on a separate computer, and enter the address: **https://buffalonas.com**. When it's loaded (you may need to add an exception in your browser to access it), enter the name of the cloud server you created in the box provided. Click **Connect** when ready.


WebAccess
BUFFALO
Connect

CloudDriveBDM

STEP 6

To begin with, you'll have a blank interface, without any folders or files. Click on the **Log In** button in the top right, and enter the username and password of the user you've just created. Click the **Log In** button when you've entered the details of the user.

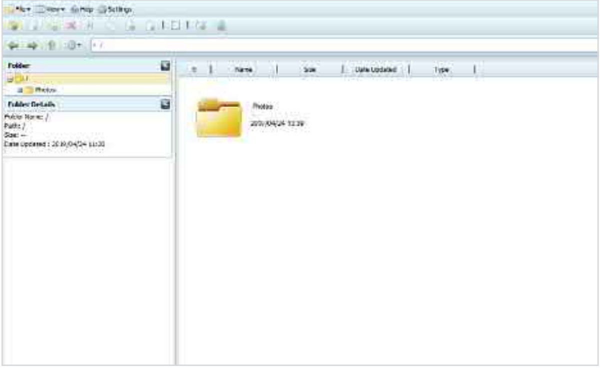

Log In
Cancel

Enter the username and password.

Username: BDM
Password: ••••••••

STEP 7

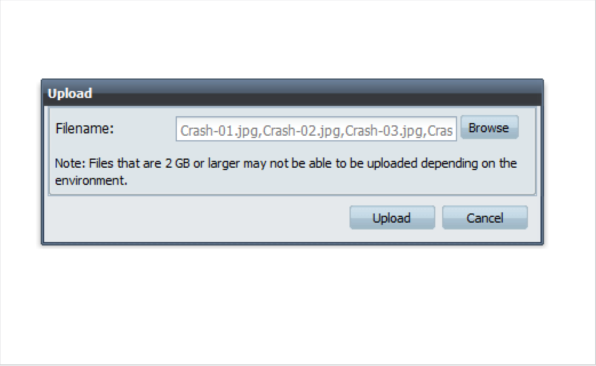
Once logged in, the interface changes to display the folders available to the user. This view depends on what folders you've given them access to, either from the user level or the group level. Double-click on the folder you created earlier, in the main pane of the cloud interface.


Settings
Folder
Photos
Folder Details
Name
Size
Date Updated
Type
Photos

Folder Name : /
Path : /
Size : --

STEP 8

You can right-click the main pane to view the possible actions your user can do with the privileges they have. For example, right-click and choose **Upload** from the menu. Click the **Browse** button, and select some files to upload to the cloud server, then click the **Upload** button when ready.

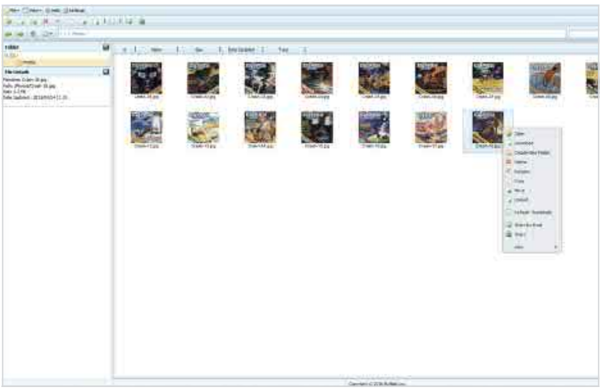

Upload
Browse
Upload
Cancel

Filename: Crash-01.jpg,Crash-02.jpg,Crash-03.jpg,Cras

Note: Files that are 2 GB or larger may not be able to be uploaded depending on the environment.

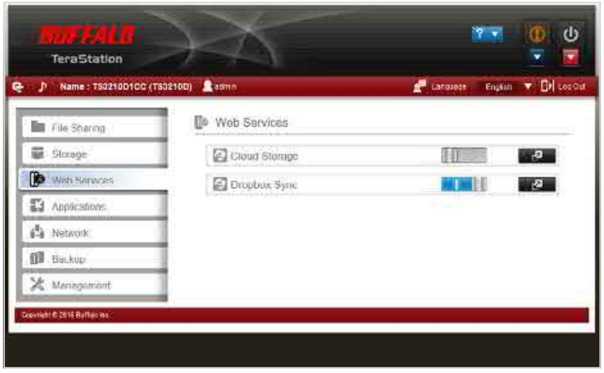
STEP 9

Once the upload is complete, click the **OK** button. The interface refreshes, displaying the folder contents. You can right-click each of the individual files and select **Share** to create a link to send to a user. You can also create and share folders with other users, download files, copy and move.



STEP 10

Back in the Buffalo admin page, you can also synchronise Amazon cloud storage services and Dropbox content with the folders on your Buffalo NAS. Users can then access the Buffalo cloud server you've created, edit or update any content, and have it synchronised with the company's Dropbox account.


BUFFALO
TeraStation
Language
English
Log Out
File Sharing
Storage
Web Services
Applications
Network
Backup
Management
Web Services
Cloud Storage
Dropbox Sync

Name : TS3210D1CC (TS3210D)
admin

Cloud Security

The biggest issue that faces every user of a cloud service, regardless of whether they're a home or business user, is security. How can you be certain your data is safe from hackers in the cloud? Nothing is 100% secure, but we can take precautions.

SAFE CLOUDS

Ensuring Cyber security is often endeavoured by having multiple layers of security in place. Here then are ten golden rules for cloud security.

RULE 1 Always use a cloud service that offers full encryption for your data. Ideally, the cloud service should offer 256-bit AES military-grade encryption across all its communications and storage. This way, it's going to be exceedingly difficult for a hacker to gain entry through brute force alone.

RULE 2 Encrypting your data before uploading it to a cloud service is a highly sensible idea. Providing you take steps to ensure the encryption keys are safe then, should someone ever gain entry to your account, all your data appears as a jumble of characters.

ENCRYPTION

RULE 3 If you're going to use a cloud service to store your data, it's best to fully read and digest the Terms of Service of the cloud provider. You'll be able to see where they store your data, what actions they'll perform to ensure its safety, and what they'll do in the event of a breach or data disaster.

I Agree
I Have No Idea What This Says

RULE 4 If possible, try not to store any sensitive and extremely personal data on the cloud. However, if you do, then make sure it is encrypted before being uploaded to the cloud. Bank details, names, addresses, credit card number, etc. all are worth their weight in gold to a hacker. Also, don't store any text files containing passwords on the cloud.

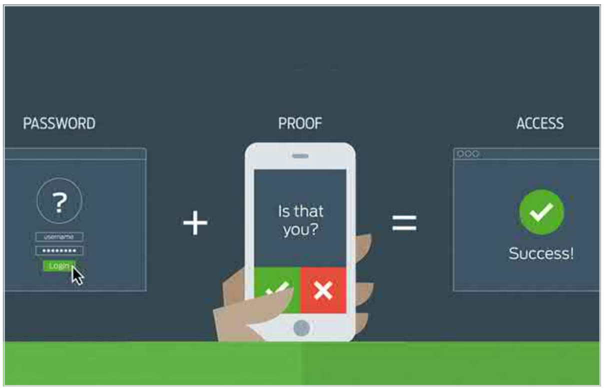
CONFIDENTIAL

RULE 5

Make sure the password used to access your cloud service is strong and doesn't contain anything relating to you - such as your surname, street name, and so on. The number of people who still use 'password' as their password is unbelievable. Try instead to insert numbers, capital letters, and symbols.

RULE 6

If a cloud service offers a two-step verification process, then it's best to use it. A two-step process involves you entering a password, which you receive via SMS, and often includes an email informing you of when and where the login has taken place. This way you're doubling up on the security access layer.



RULE 7

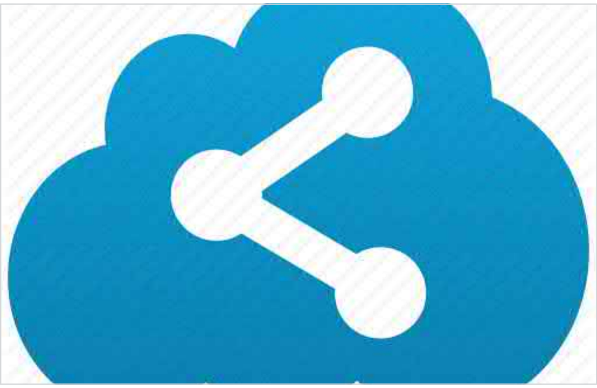
While having the ability to upload everything to the cloud automatically is certainly helpful, there is a concern that items you don't want in the cloud could get uploaded by mistake. Automatic syncing is great, but as celebrity news often dictates, it's not always beneficial.

RULE 8

Attempts to access your data in the cloud don't always come from some hacker in front of a multi-monitor setup. We're all familiar with social engineering being used to obtain personal information, with callers claiming to be from top organisations needing to gain access to your computer. Don't fall for it.

RULE 9

Be careful when it comes to sharing files and folders from the cloud. While it's the ideal solution for collaboration, mistakenly giving someone the wrong level of access, or access to something they shouldn't be viewing, can have disastrous consequences for an individual or a business.



RULE 10

Although your cloud data is pretty secure, it's always best to have at least a couple of extra backup locations to hand. As the saying goes, don't keep all your eggs in one basket. While Google Drive isn't likely to go bankrupt anytime soon, it's still worth having another recent backup within easy reach.

MUSIC
DATA BASE
PHOTO
BACK UP

Cloud Technologies: Education in the Cloud

There's no doubt cloud computing is changing the way we work, live, entertain ourselves, and so on, so it's logical to assume it's going to help us, as a society, move forward in terms of education. According to Eduserv, over 35% of UK universities have adopted a cloud approach to education, and that's set to increase significantly over the coming years.

The education in the cloud concept takes on many forms. Cloud technologies are used in a variety of ways throughout the education sector; from enrolling students, to providing course materials, aiding teachers in the delivery of their lessons, and even teaching entire lessons remotely over the cloud. There's a lot the education sector can get from using cloud resources, so it seems strange that it's taken so long to get to this point.

CLOUD IN SCHOOL

One of the main reasons why education is moving exceedingly slowly into the cloud is thanks to the government, in the UK at least. The formation of academies in 2000, the brainchild of former UK Prime Minister, Tony Blair, was to help drive up standards in schools where local authorities were struggling. However, that transition created its own set of problems, and it's taken several years for the uplift to settle down; also, due to recent austerity measures under the Conservative government, funding has been tight for schools.

That is beginning to change, however. A guidance report published by the government in April 2019, titled: Moving your school to the cloud, outlined many of the benefits of moving existing systems and services to the cloud. These included helping to make current systems more useful and engaging, remote access for students and staff who are unable to make it into school, cost savings and increased and improved security.

The move to the cloud is gradual, but the ball has started rolling. It is estimated that by 2025, 75% of current academies will have moved 90% of their services and systems to the cloud.

Be the start
of something
Take them further with Cloud for Education
CONTACT A MICROSOFT EDUCATION EXPERT ›

BENEFITS OF THE CLOUD FOR EDUCATION

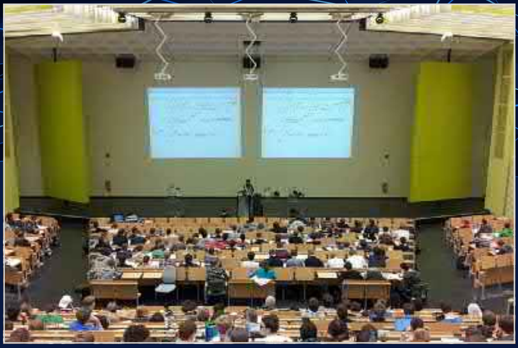
The entire education sector has many systems and services that can greatly benefit from moving to the cloud, or even some form of hybrid cloud setup. Elements within a school, college or university, such as management information systems, enrolment, curriculum software and content, can all be directly run from a central, government-led cloud solution; Ensuring that all educational establishments are conforming to a single policy. For example, Capita Education Software Solutions is named as the Crown Commercial Service for delivering cloud-based systems to education through its UNIT-e Management Information System.

Security is a bonus for education in the cloud, as the technology ensures a reliable and continuous service that removes the risk of downtime from site maintenance, as well as keeping an educational establishment's data safe, with higher levels of security than an individual school or college may be able to offer.

Reduced costs due to licensing, less need for on-site servers and server rooms, and the management of complex IT systems can be factored in. Limited user licenses for costly software can be better managed, so the school isn't wasting money on a license that isn't being used.

Accessibility is a key element that's often overlooked here. The ability for a school, college or university to enable remote access to its systems, as if the student were sitting in front of a computer within the premises, is a huge benefit to everyone. It doesn't matter if a student is unable to attend classes, due to illness or some other factor, or if that student is located on the other side of the world. Providing they have access to the Internet, they'll be able to log in to the establishment's cloud area and attend virtual classes, catch up with homework, and have access to the vast Intranet library that most education establishments offer.

Teaching will undoubtedly benefit from the cloud through most of the points mentioned above, plus it'll enable the teacher to incorporate teaching ideas and concepts from other schools, colleges and universities. The majority of cloud services are aimed at collaboration, so, with this in mind, teachers from across the country, and indeed the world, would be able to work together to deliver better lessons. There's also the possibility that teachers from other countries would be able to deliver unique content to students who live in another part of the world

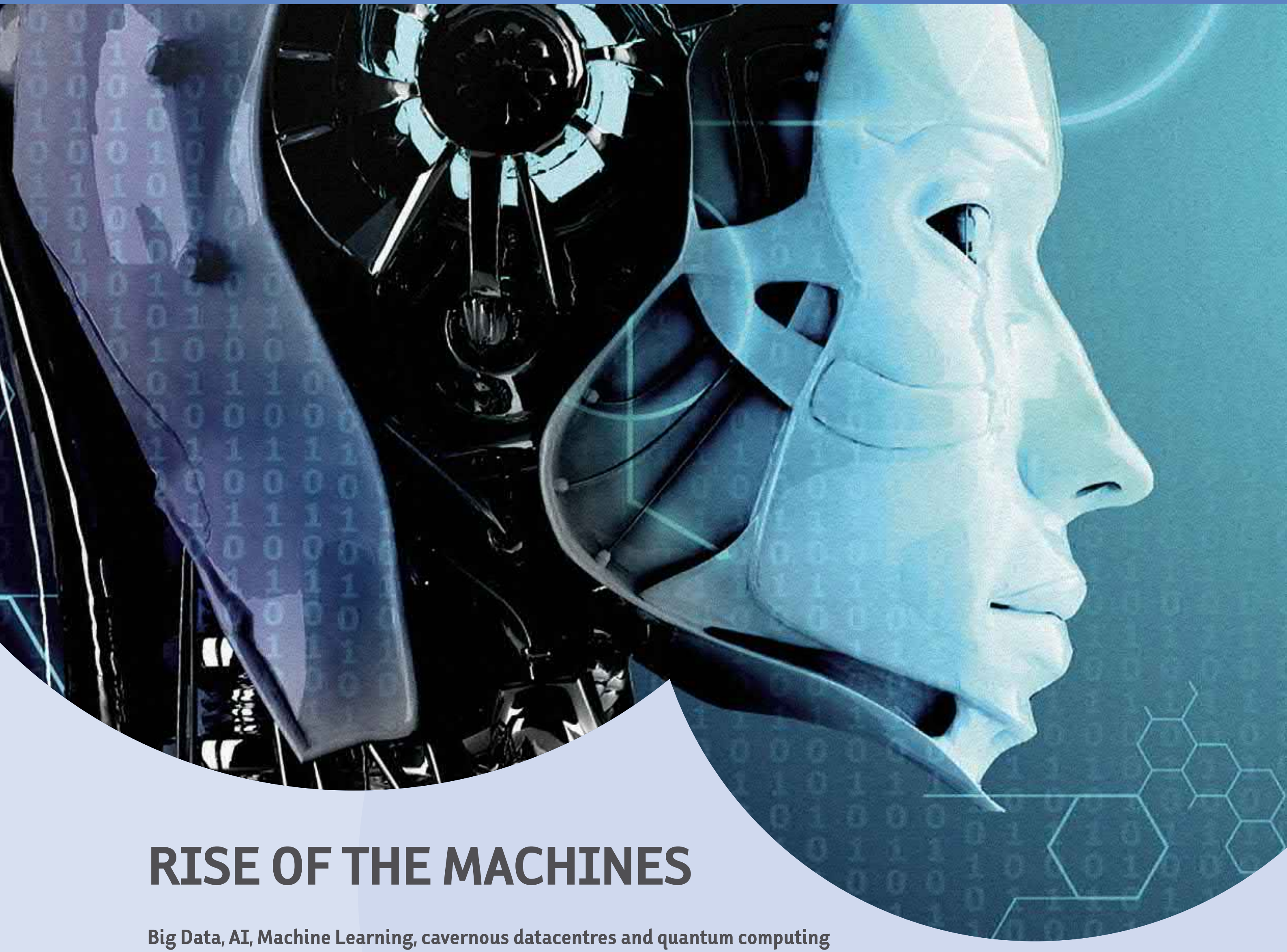


The Future

It's not science fiction to think that the next generation of students could well be distance learning more than face-to-face. While physically being in front of the teacher is believed to be the best approach, it's worth considering that cloud technologies make it possible for a student to log in to their educational account at any time to complete a lesson. Whether that'll work in practice isn't for us to say, but it's certainly worth considering.

Where Next for the Cloud?

The cloud has moved on from being the latest buzzword to a modern user's must-have service. SMBs and large-scale enterprise organisations would probably admit to being so reliant on cloud services that their companies wouldn't exist without it. So, what's next for cloud technology?



RISE OF THE MACHINES

Big Data, AI, Machine Learning, cavernous datacentres and quantum computing are all terms bandied about when it comes to discussing the future of the cloud.

In truth, no one really knows which direction cloud technologies will take over the next five to ten years. However, it's generally agreed that the aforementioned terms will play a big role in defining what the future of the cloud will look like.

Cloud technologies are still in their infancy, in technical terms at least. As consumers, we've only just started to use the cloud for everyday tasks. Equate to physical technology, and we've just reached the point in the early '80s when the home computer became accessible and popular.

While it's a little disconcerting to think that we're putting our trust into technology at the equivalent level of a Commodore 64, it does mean that the future is going to be pretty spectacular.

D:WAVE
2000Q
D:WAVE
D:WAVE
2000Q
D:WAVE

BIG DATA

A popular term at the moment, Big Data is set to transform the way cloud computing works in the future. Significantly, with the big names in cloud computing all vying to support bigger and better Big Data, it's obvious that being able to analyse huge volumes of data will be second nature in the next five years. How this will trickle down to the consumer level isn't clear at present, but the pundits have their bets on near-unlimited storage available for personal cloud use.

AI AND MACHINE LEARNING

Off the back of the Big Data surge come ever-impressive leaps in Artificial Intelligence and Machine Learning. Preparing hundreds of terabytes of Big Data for analysis takes up considerable time for those involved, so having a powerful computer do this for you will certainly make sifting through that data easier. Of course, Machine Learning can expand on that, helping to create the cloud-based apps of the future that the consumer will access via their mobile devices. Despite the Hollywood negativity of AI, it's the future of cloud computing.

DATACENTRES

Looking through a mid-sized datacentre is something you don't forget in a hurry, just imagine what it'll be like looking through the datacentre of the future? These impressive structures, with their labyrinthine corridors of monolithic servers will dominate the cloud future. It's already been emphasised that, although power-hungry, a datacentre using carbon-neutral energy sources is far more ecological and economical than a city full of companies' server rooms.

QUANTUM COMPUTING

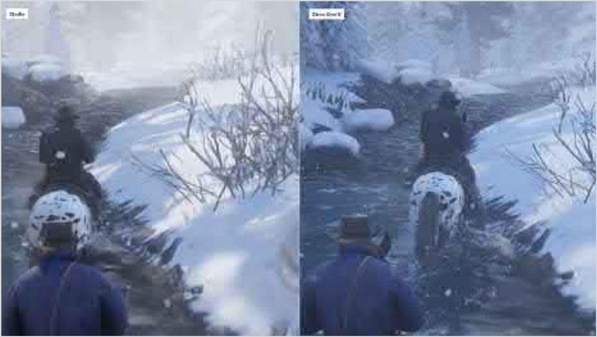
Although still quite exotic, quantum computing is quickly becoming a real thing. You can, even now, access quantum processors and experiment with their in-built semi-mythical tunnelling, entanglement and Q-Bit architectures. As the future will no doubt show, quantum computing will improve and finally leave behind traditional computing models. When this happens, expect to see a new generation of AI evolution and near-instantaneous cloud data access.

CLOUD GAMING

One of the most significant moves in the cloud industry we'll see throughout 2020, and beyond, is the rise of cloud-based gaming. Google's Stadia has started off on rocky ground, and Microsoft's Project xCloud looks to be the bigger player moving forward. With more powerful servers at the disposal of big companies and faster to-the-user broadband speeds, there's no reason why cloud gaming should fail. The only bugbear will be the levels of graphical processing on the gamer's side. With heightened realism in games, a bottleneck of graphics throughput will happen sooner rather than later, so perhaps the console isn't going to die just yet – but it may evolve into more of a graphical processing unit for online content in the future.

Cloud Technologies:
Gaming in the Cloud

With the release of Google Stadia, the gaming community has officially entered a new era of content delivery: Gaming in the Cloud, or Gaming as a Service. Nevertheless, is it the future we want, or just some kind of cloak and dagger way for hardware companies to further throttle the games industry into dancing to their tune?



Sony, Nintendo, Amazon, Electronic Arts, NVIDIA and Microsoft; each of these companies must look to the future of gaming in the cloud, and change the way that games are played, distributed, sold and owned.

Google's Stadia project launched in November 2019, and, while the hype behind it was reaching a fever pitch, the actual launch was something of a damp squib. A catalogue of issues, mostly due to latency issues, meant the company's first foray into gaming in the cloud didn't quite rock the boat as the Google team had hoped.

Not that the Stadia is a bad idea, on paper it's great. Create a device that's capable of delivering games as a service that can be played on any medium, be that a PC, tablet, phone or even just the TV. There's no need for a several hundred-pound games system, or thousand pound-plus gaming PC, as all the graphical processing is done in the cloud, on Google's impressive datacentre servers, then sent through the broadband lines to the gamer at home.

The service itself will be subscription-based, with the Sadia costing somewhere in the region of £120 and an obligatory monthly subscription of around £8.99 per month - correct at the time of writing. However, the promise of this golden era of game-anywhere falls far short of the expectations. Stadia is a bit of launch flop; many of the promised features, such as recording to Twitch, and 4K gaming, are missing, and the overall quality of the service lacks considerably.

The problems stem mainly from latency or lag. Those who have reviewed the Stadia on launch say that gameplay is hindered by poor graphics and problems around the game keeping up with the player, even when connected to faster than average broadband lines. And, let's face it, latency issues are a major thorn in the side of the Stadia, especially as it's being sold to a community obsessed with having the lowest latency possible.

PROJECT XCLOUD

Project xCloud

Project xCloud is Microsoft's answer to the gaming in the cloud service. The service that Microsoft offers is very similar to its Xbox Console Streaming program. However, in the case of Project xCloud, the player doesn't need to own an Xbox console.

xCloud enables the player to pair an Xbox controller with an Android device, and play titles through the Xbox Game Streaming App. The game is hosted on Microsoft's datacentre servers, which are handling all the heavy-duty graphical elements, as well as the huge amount of processing power needed to drive a modern game. The app connects the player to the cloud service and begins streaming the game to the player's Android device.

It's very early days, and Microsoft has the advantage here of learning from Google's mistakes. It's taking the time to ensure that the dreaded latency is kept to an absolute minimum come the official launch of Project xCloud.

Whether they'll be successful remains to be seen, though.

PROBLEMS

The concept of gaming in the cloud isn't new, but it's only now that companies have the processing hardware in their datacentres to supply the vast resources necessary to host a complex modern game for millions of potential players around the world.

Thanks to the likes of NVIDIA, a lot of the datacentres used for gaming in the cloud contain specialist NVIDIA hardware that's capable of delivering the kind of frame rates that the modern player demands from their game. The datacentre can certainly handle the load of millions of gamers, providing they live next door.

The problems stem from the lack of consistent, good bandwidth to the gamer's home. Some of you reading this will have 100+Mbps lines to your ISP, resulting in near-perfect streaming of a game. But, a lot of you won't. In fact, most of the people reading this will average around 30Mbps, to the front door. So, once you take into account the other elements of the home network, contention on the line and the fact that broadband speeds peak and dip throughout the day (despite what the ISP would have you believe), you're left with a substandard connection to a server that's trying to send you a huge volume of information.

Will it ever work?

We believe it will, yes. However, there's a lot of bridge crossing necessary before we get to that point. While we've got the hardware to deliver such services, the average home user isn't anywhere near able to receive that level of traffic without problems. And currently, what's the point of paying £120 plus £107 per year for a service that'll only deliver a fraction of what's sold. As a gamer, you may as well pay £300 for a console and enjoy pure 4K content without the problems of latency or lag.

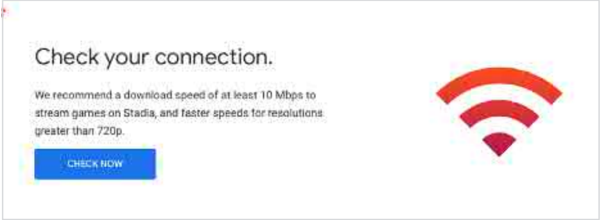
How to Use Google Stadia

With their Stadia project, Google hopes to revolutionise how we play games in the home and on the move. Their vision for the future is one where it is possible to play games on virtually any hardware without the need for expensive consoles or high-end desktops. Let's take a look at the hardware and explain how it works.

STADIA SPEED TEST

Before you begin your Stadia set-up, you need to ensure that your Internet connection is fast enough. Google has provided an online tool to do just that.

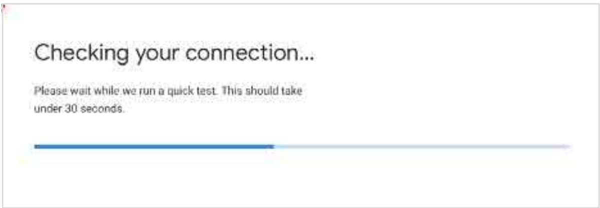
STEP 1 Open a web browser, preferably on the device with which you intend to use Stadia, and enter the following URL: projectstream.google.com Before you start testing your Wi-Fi speed you are advised to limit web traffic, such as downloads or streaming.



Check your connection.

We recommend a download speed of at least 10 Mbps to stream games on Stadia, and faster speeds for resolutions greater than 720p.

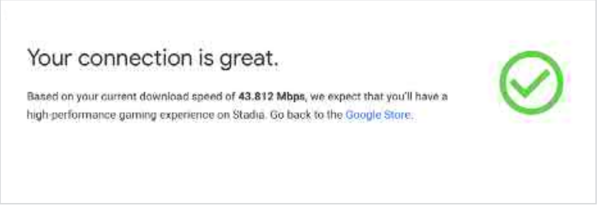
STEP 2 Once your Wi-Fi connection is free of other users, and clear of apps, tap the blue Check Now button on the left side of the web page. This activates the process, so you can simply sit back and wait for the results to appear.



Checking your connection...

Please wait while we run a quick test. This should take under 30 seconds.

STEP 3 When your Internet connection test is complete, it displays the results; this should take no longer than 30 seconds. These come in the form of a green tick for a pass and a red cross for a fail. A fail essentially rules out Stadia compatibility.



Your connection is great.

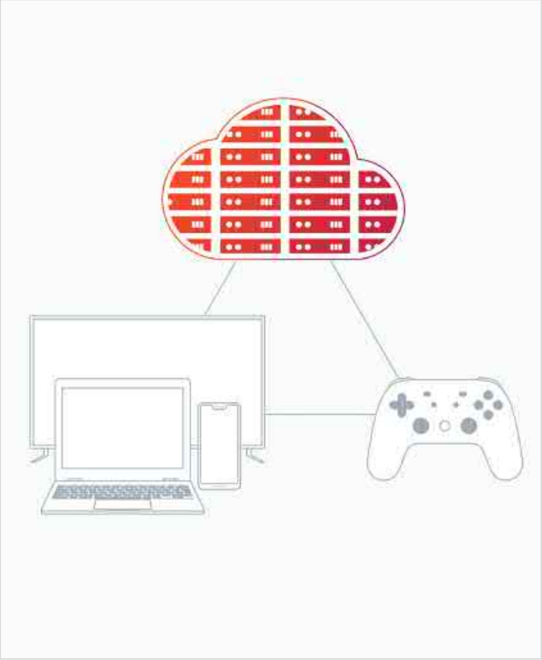
Based on your current download speed of **43.812 Mbps**, we expect that you'll have a high-performance gaming experience on Stadia. Go back to the Google Store.

HOW STADIA WORKS

Google Stadia is a hardware free game streaming service that will enable players to play a catalogue of game titles on a large variety of devices. All you will need to play is a joypad, a screen and an Internet connection.

Stadia will allow play on existing desktops/laptops computers, Smart TVs, tablets and smartphones. Play is enabled via the Stadia controller that may indeed resemble a traditional joypad, yet is much more than that. Unique features exclusive to the joypad, include the ability to capture and share your gaming footage directly to YouTube.

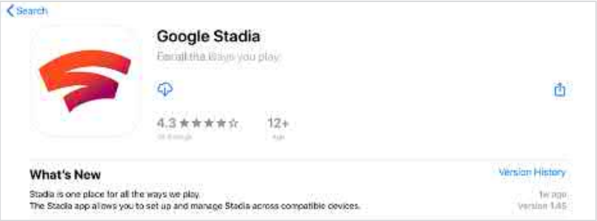
So basically get your device online, connect your joypad and press play, that's it!



GETTING STARTED WITH STADIA

Are you ready to play some games? Let us take you through the set-up of your Google hardware with your monitor or TV so you can press Start with Stadia.

STEP 1 Using a mobile device (smartphone or tablet), you need to open the App Store on iOS, or Google Play on Android, and download the Stadia application. At this point, enter the invite code that was emailed to you at purchase.

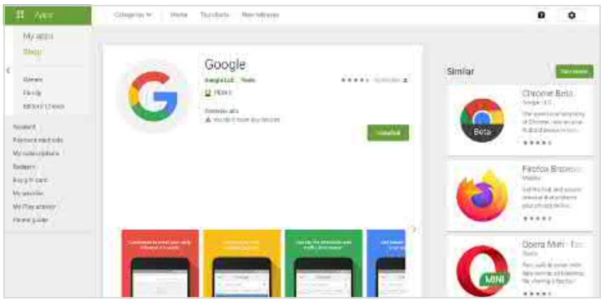


What's New

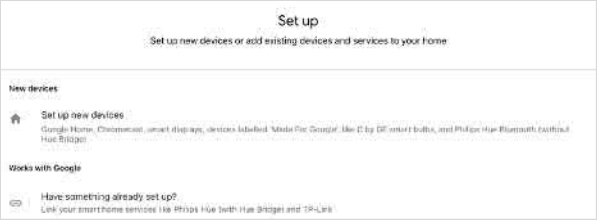
Stadia is one place for all the ways we play.
The Stadia app allows you to set up and manage Stadia across compatible devices.

STEP 2 If you wish to use your Google Stadia on your TV, you need to set up your Google Chromecast Ultra first. NOTE: You need an Android or iOS mobile device to complete setting up Chromecast.

STEP 3 On your Android device, you need to download the latest build of the Google Home App. Sign in using your Google account and then connect the Chromecast to your TV via the HDMI input and USB for power.



STEP 4 Ensure your Android mobile device connects to the same Wi-Fi network you want to link to your Chromecast Ultra. Open the Google Home app and, from the home screen, tap Add +>Set up device>Set up new devices.



Set up

Set up new devices or add existing devices and services to your home

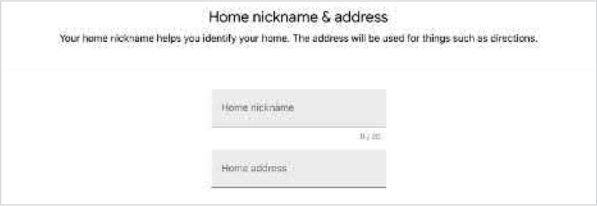
New devices

Set up new devices

Works with Google

Have something already set up?

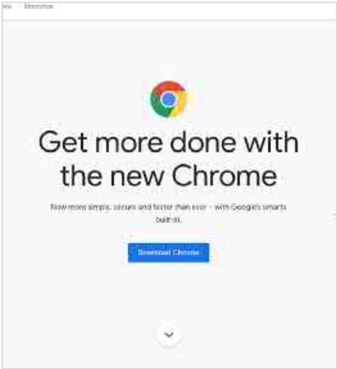
STEP 5 Find your Chromecast Ultra from the list of new devices. Once selected, follow the instructions and the Google Home app pairs your device to your home network, thus enabling Stadia streaming via your Chromecast.



Home nickname & address

Your home nickname helps you identify your home. The address will be used for things such as directions.

STEP 6 Finally, if you wish to play games on your desktop or laptop, you need to open a web browser on the video device you wish to use and visit: google.com/chrome and download the latest build of the Chrome browser.



Get more done with the new Chrome

WHAT'S IN THE BOX?

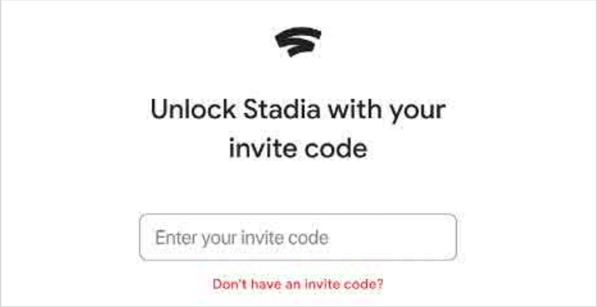
Having confirmed Wi-Fi compatibility, let's start unboxing your Google Stadia. Here's what in store when you peel back the lid of your Stadia Premiere Edition.

- A Single Google Stadia Controller
- A Chromecast Ultra
- A Mains Charging Cable
- Three Months Subscription to Stadia Pro
- Documentation

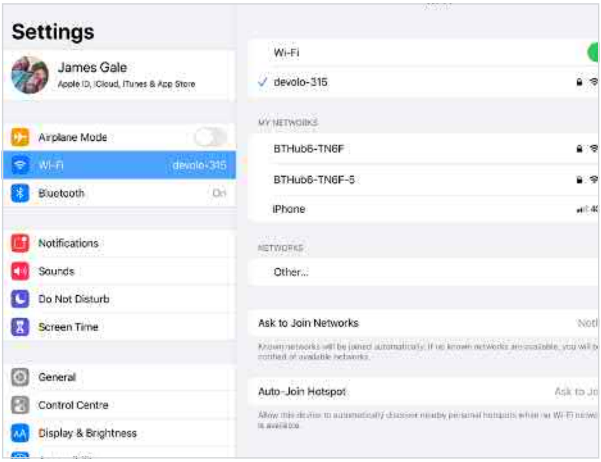
STEP 7 Now let's turn our attention to the Google Stadia Controller, once out of the box you need to ensure that your device is fully charged before you start setting up the controller itself.

STEP 8 Once the device is fully charged, unplug the power cable. Press the Stadia logo button on the controller for two seconds to turn it on. A vibration confirms that you have powered up the device

STEP 9 Switching to your mobile device, open the Stadia app, using your invite code (if required), and tap the Controller icon to the top right, you may need to enable Location access first. Select your controller from the list of devices.


Unlock Stadia with your invite code
Enter your invite code
Don't have an invite code?

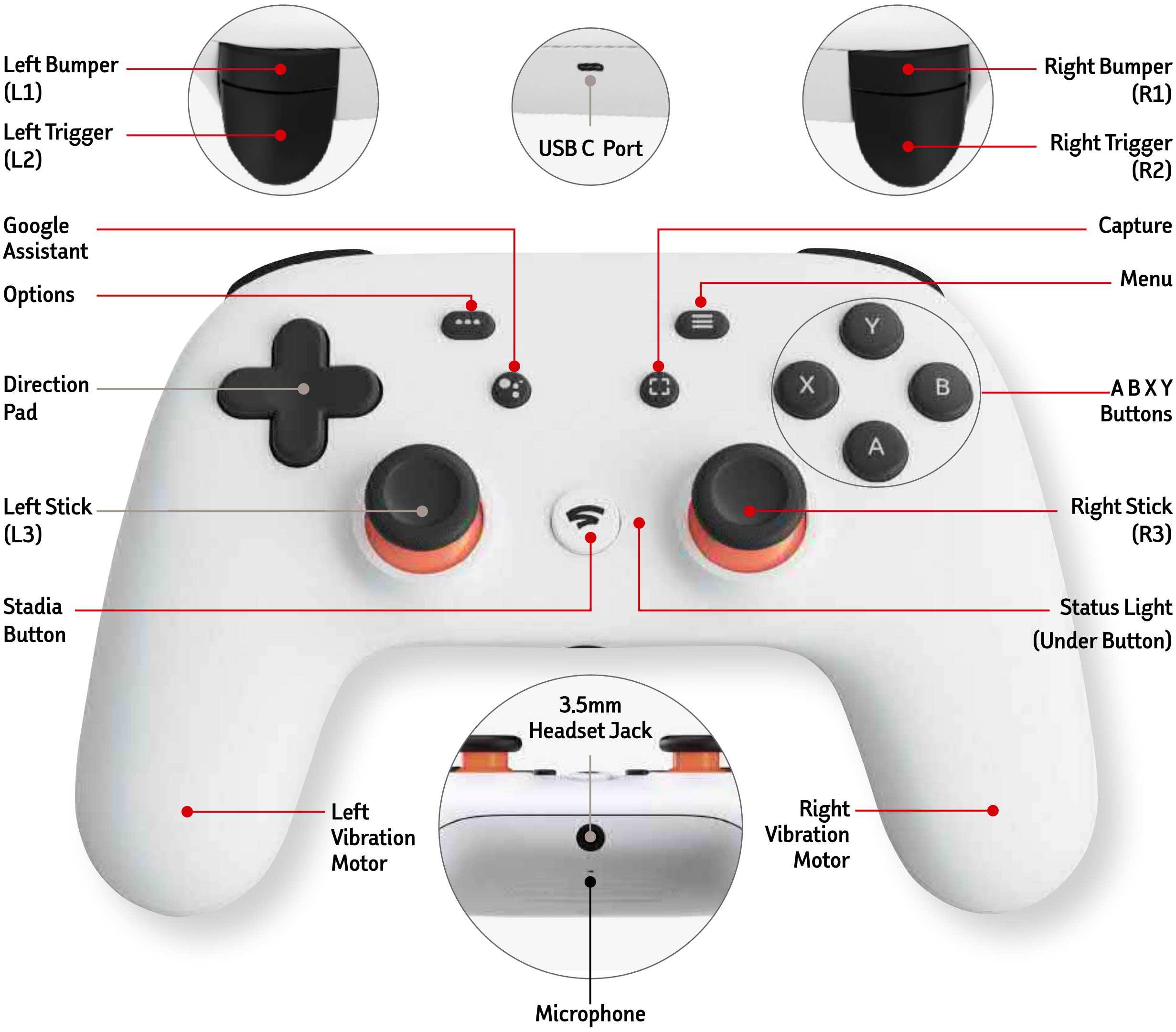
STEP 10 Your Stadia controller starts to vibrate to confirm connection and then, when prompted, tap Yes on the mobile app. Now tap Connect to your network using the same account as your mobile device.


Settings
James Gale
Apple ID, iCloud, iTunes & App Store
Airplane Mode
Wi-Fi
devolo-315
Bluetooth
On
Notifications
Sounds
Do Not Disturb
Screen Time
General
Control Centre
Display & Brightness
Wi-Fi
devolo-315
MY NETWORKS
BTHub6-TN6F
BTHub6-TN6F-5
iPhone
NETWORKS
Other...
Ask to Join Networks
Auto-Join Hotspot

STEP 11 You need to enter your Wi-Fi password and then tap Connect to Wi-Fi to complete the process. Your controller may automatically install an update, if it is required, and then you are ready to play.

GOOGLE STADIA CONTROLLER CONTROLS EXPLAINED

With Stadia, the controller is the console, so understanding how this all-in-one device works is going to be essential to your gaming experience.


Left Bumper (L1)
Left Trigger (L2)
USB C Port
Right Bumper (R1)
Right Trigger (R2)
Google Assistant
Options
Capture
Menu
Direction Pad
Y
X
B
A
A B X Y Buttons
Left Stick (L3)
Right Stick (R3)
Stadia Button
Status Light (Under Button)
3.5mm Headset Jack
Left Vibration Motor
Right Vibration Motor
Microphone

UNDERSTANDING THE STATUS LIGHT

Blinking White:	Your controller is charged and ready to access your network via the linking code.
Solid White:	The controller is powered on, linked to a screen and ready for use.
Blinking Orange:	The controller needs connecting to a Wi-Fi network.
Solid Orange:	The controller is charging, when complete, the light turns off.

CAPTURE AND SHARE FOOTAGE

If you have a YouTube channel, or simply want to share your gameplay footage via social media, you can capture gaming using this button. Press once to take a screenshot or hold to capture video.

STADIA OFFICIAL SPECS

Weight:	268g
Dimensions:	163mm x 105mm x 65mm
Internals:	Custom 2.7GHz hyper-threaded x86 CPU with AVX2 SIMD and 9.5MB L2+L3 cache. 16GB of RAM with up to 484GB/s of performance. SSD cloud storage
Colours:	Clearly White, Just Black, Night Blue & Wasabi

Glossary of Cloud Terms

There are a number of confusing and bewildering terms used in technology, and, since the cloud became a real thing, those terms have expanded to encompass everything we do both online and in a cloud service.

CLEAR SKIES AHEAD

Here's a quick list of some of the terms you're likely to come across as you explore cloud technologies further. Needless to say, the industry loves its terminology, so expect many more as you delve deeper into this sphere.

AGILITY Refers to the faster implementation of IT within a company, specifically cloud implementation; Often referenced when a company moves from in-house to cloud technologies particularly quickly.

AIRFRAME An open-source cloud platform that targets businesses in the thinking stage of adopting a private cloud service model.

BACKUP AS A SERVICE Another form of online mass storage; whereby a company can effectively back up its entire system's data to the cloud. This service is of interest to audits, as off-site backups are secure and safe from accidental damage.

BPaaS Business Processes as a Service. The complete business process including HR, accounts, payroll, advertising, and so on, in a single cloud package from a Cloud Service Provider.

CLOUD The Cloud, an online set of globally connected services, with which individuals and businesses can interact.

CLOUD BACKUP Being able to back up your data to a cloud storage service; used by both consumer and businesses alike. Offers support for multiple platforms, operating systems (from computers to mobile devices) and even games consoles.

CLOUD BROKER A company that liaises between several cloud service providers and clients to help find the best solution.

CLOUD BURST A hybrid cloud-deployment feature, whereby a private cloud is able to utilise public cloud resources when demand for computing tasks spikes.

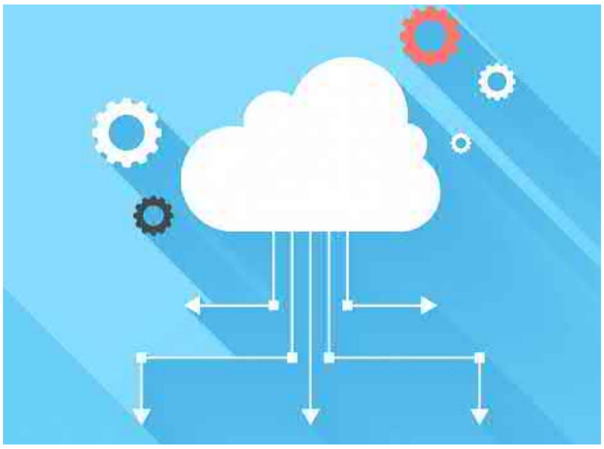
CLOUD INFRASTRUCTURE The physical hardware, software and connectivity that makes up a cloud-based datacentre. The servers, apps, networking and so on.

CLOUD PYRAMIDS A visualisation of a cloud providers infrastructure that shows, usually via colour coding, the services it offers on different platforms.

CLOUD SERVICE The solution that's offered from a remote cloud server that can be storage, email and so on. And categorised as Private, Public or Hybrid.

CLOUD SERVICE PROVIDER The company that provides cloud-based solutions such as storage, email, virtualisation and more. The company may or may not own its datacentre and cloud infrastructure.

CLOUD STORAGE Online mass storage, housed on servers in datacentres, with quotas set for those who utilise the storage.



Glossary of Cloud Terms

CLUSTER A group of linked computers that work together as if they were a single computer, for high availability and or load balancing.

COMMUNICATIONS AS A SERVICE Cloud-based telecoms, messaging and video conferencing services. The likes of Skype, Facebook and Twitter come under the CAAS heading.

DESKTOP AS A SERVICE A form of cloud-based remote working, whereby a user can access their desktop from any Internet connected device, regardless of the device's operating system.

DATABASE AS A SERVICE Cloud housed and driven database, freeing up the company's investment in in-house hardware and significantly lowering power costs.

DATACENTRE A self-sufficient building with specialised climate control housing lines of servers. The servers work in a cluster to provide the various cloud services.

ELASTICITY The ability for a cloud service to expand or retract its services, depending on the demand to its servers.

EC2 Amazon's Elastic Compute Cloud. A web service that provides Elasticity capacity in the cloud, designed to make working with web-scale computing easier for developers.

GAMING AS A SERVICE Cloud-driven gaming servers that host games for multiple platforms: PC, PS4, Xbox, etc. and provide unique gamer-specific rewards, trophies and events.

HYBRID CLOUDS A cloud service that uses public and private clouds, as well as in-house hardware, to provide cloud services.

HOSTED APPLICATIONS A web-based application that runs on a remote server, hosted in the cloud. The same as Software as a Service.

INFRASTRUCTURE AS A SERVICE A cloud model that provides users with a virtual server and network. The online server can be accessed from any Internet-connected device.

MOBILE CLOUD STORAGE Simply a service designed to house mobile data storage for an individual or business.

NIST National Institute of Standards and Technology. Founded in 1901, NIST provides standards for most electronic and digital services.

PLATFORM AS A SERVICE A cloud model that provides developers with a coding platform to programme new apps. The platforms can be any operating system, offering greater scope for multi-OS app development.

PUBLIC CLOUD A cloud service, available to everyone, that provides everything from email and storage, to virtualisation and collaboration.

PRIVATE CLOUD A cloud service that's managed by a single business, providing the same duties as a public cloud but having exclusive access to the business only.

SOFTWARE AS A SERVICE A cloud model that provides online access to software such as productivity apps, email etc.

SERVICE MIGRATION The act of moving all your company, or individual, data from one cloud service to another. Can also mean moving from all in-house to a cloud-based service provider.

VIRTUALISATION Creates an image of an operating system on virtual hardware. Users can create virtual machines for any hardware type, on which they can develop or test programs.

VPC Virtual Private Cloud. A private cloud that exists within a shared or public cloud. Such as a company's private cloud hosted within Amazon's EC2.

150 **The Google Home Collection**
There are six Google Home devices to choose from. If you are not yet sure which Home speaker is best for you, check out all of the details here

154 **Play Music on Google Home**
To do this you need to know how to ask the speaker to play, stop, pause, shuffle and skip the music you want! Let's take a look at just how.

160 **Google Home Tips and Tricks**
To playing a game or telling you a joke, there are literally 100's of things it can do; here's 10 of the best

Google Hardware Guides

For many people Google's hardware is fast becoming an essential piece of home kit, but what is it, and how does it work?

Throughout this section we look at what Google's Home devices are, and where the cloud fits in – bringing the power of cloud and AI technology to your home. There's in-depth guides on how to get the most from the Google Home collection, as well as handy tips and tricks.

148 Google Cloud to Home
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158 How to use Google Chromecast
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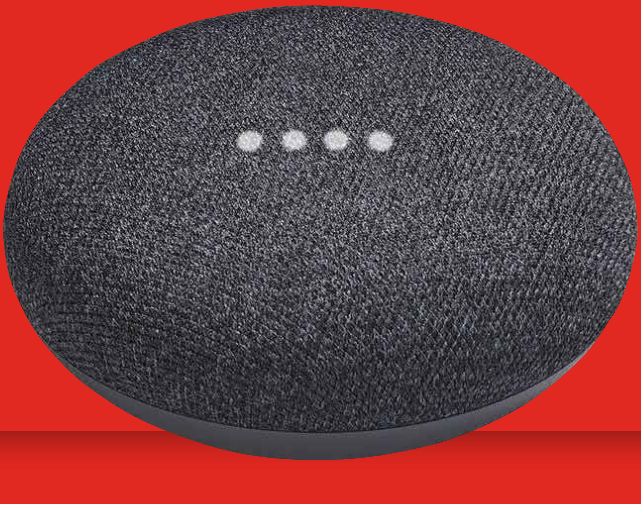
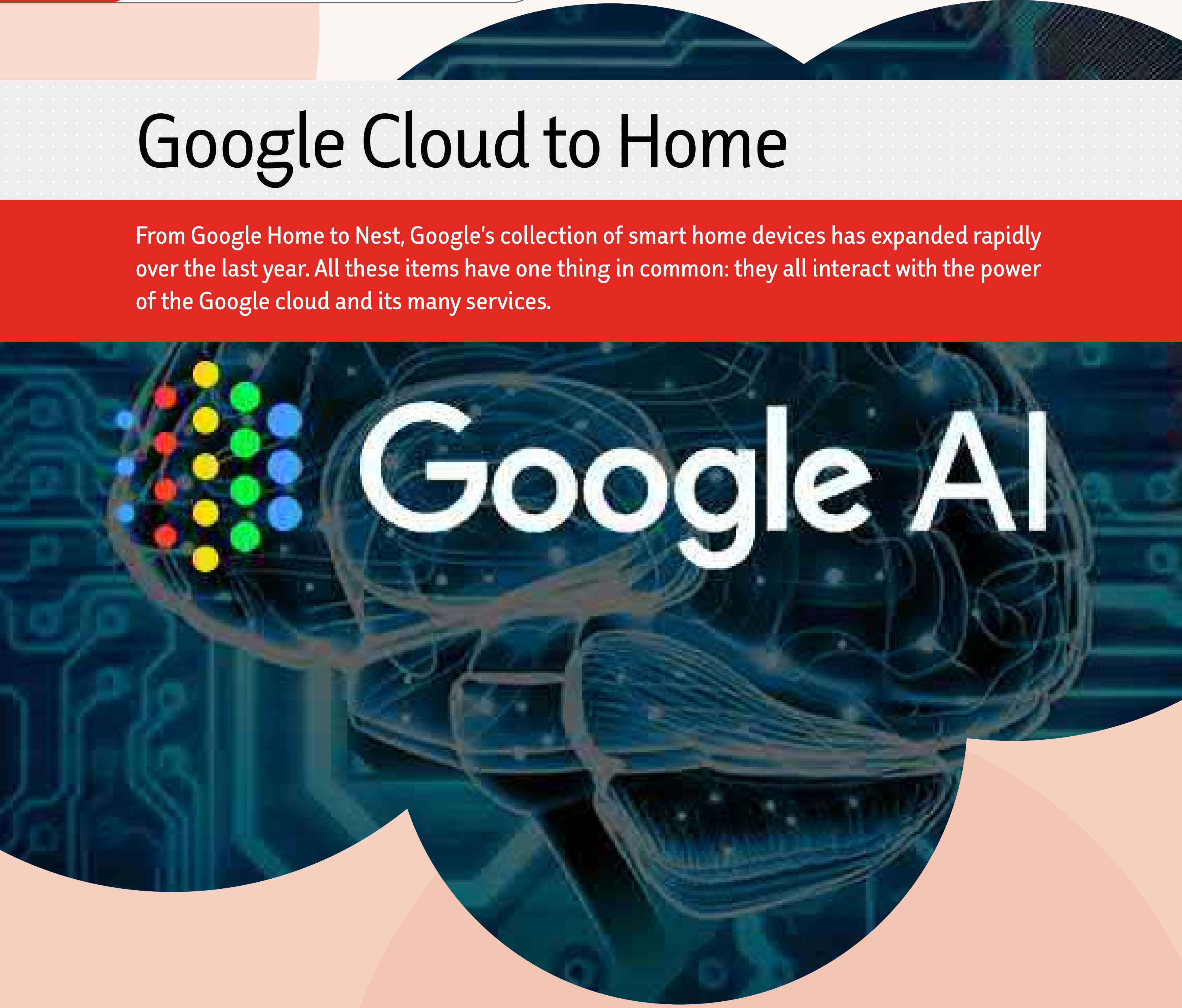


Google Cloud to Home

From Google Home to Nest, Google's collection of smart home devices has expanded rapidly over the last year. All these items have one thing in common: they all interact with the power of the Google cloud and its many services.



Behind the pleasingly aesthetic speakers, Nest Wi-Fi, Hubs, Home and Chromecast devices lies the heart of the Google cloud services; in particular, the Google Assistant.

This artificial intelligence-powered virtual assistant was developed by the AI teams at Google and released in 2016. It's written in C++ but utilises Python libraries to help understand the communications between people and the actions that are required of it.

CThe AI side of things, alongside the wealth of information that's incorporated into the Google Assistant, are all held within the labyrinthine corridors of the many Google data centres scattered around the world. Its mission is to "Create a more helpful Google for you", and as such is designed to interact with all of Google's services, as well as third party services and the ever-growing collection of Google's hardware devices.

Since it's not the only AI Assistant on the block any more, Google's slice of the AI market share needs to be as near perfect and as powerful as possible, while still offering the human to digital personal touch that's required of a modern AI Assistant. This of course isn't an easy task to accomplish and there are near continual improvements to the core code, as well as improvements to the background hardware and software interactions with the data centres – which also trickle down to the apps on your devices.

On top of this, Google is also committed to offering its AI services as a separate product for business and users to build their own technology around. The AI and Machine Learning products form a three-tier set of services: AI Hub, AI Building Blocks and AI Platform.

A slice of one of the many Google AI Cloud Data Centres cooling solutions.

The AI Hub is Google's hosted repository of plug and play AI components, providing enterprise-grade sharing capabilities, end to end AI pipelines and out of the box AI algorithms. They enable organisations to privately host AI content.

AI Building Block provides the tools necessary for developers to add sight, language, conversation and structured data to their custom applications within the Google AI cloud. They're separated into two main categories: Vision AI, which is designed to analyse images in the cloud and Video AI, which provide tools to enable quick searching of videos and extraction of metadata.

Finally, the AI Platform is the code-based data science development environment. Where machine learning developers, data scientists and data engineers can deploy their code within the cloud. The many tools available include Deep Learning Containers, Data Labelling Services, AI Platform Predictions, What-If Tools and Cloud Accelerators.

GOOGLE'S AI CLOUD IN ACTION

A recent example of how the power of AI and Google's cloud services are working with developers and data scientists is the analysis of the Coronavirus Pandemic. Through the power of the cloud and data centres, scientists and developers are using Google's AI services to help model and predict the spread of the pandemic, how it will affect certain areas of the globe, what the end result could be in several years' time, and how to contain and lessen the spread of the virus, and future viruses, without the negative effects that we've seen throughout the world in 2020.

While this is an incredible use of Google's AI and cloud resources, it's also the same basic technology that's behind the Google Home devices. When you power up a Google Home Mini, for example and ask it to play a selection of classical music, the technology that springs into action utilises similar algorithms used to help fight Coronavirus.

CLOUDS IN THE HOME

Essentially, despite its small appearance, the Google Home Mini is a link from you to one of the many Google cloud data centres. This tiny device plugged into your wall is a link to a building that houses petabytes of data, across thousands of individual, powerful servers all working together to help discover the secrets of the universe, fight future pandemics and search Spotify to deliver to you the music you've just asked for.

Stop and think about that for the moment and you'll realise just how quickly the interaction between us and the digital world around has progressed in such a short time.

A Google cloud data centre may seem like a distant thought to many of us, indeed another world to most of us but there's a link to us and the huge power behind a data centre in our house and thanks to Google's drive in AI and cloud-based machine learning it's only going to get better.

Rows upon rows of servers all work together to form the Google AI Cloud.

The Google Home Collection

There are now six different Google Home devices to choose from, including the tiny Home Mini and the new Google Home Hub. The specification and size varies greatly, so if you are not yet sure which Home speaker is best for you, check out all of the details here.

Google Home Max

Key Features: Meet Google Home Max, he helps you to hear every note as the artist intended and feel every beat with heart pounding bass. It's the ultimate speaker, made for your music. The advanced hardware delivers deep bass and crisp treble in stunning stereo sound. It analyses, tunes and updates itself automatically, so all you need to do is listen. The far-field voice control allows Max to hear you across the room, even while the music's playing.
Final Thoughts: The best audio-only based product in the Google Home range.

Dimensions
- Width: 13.2" (336.6 mm)
- Height: 7.4" (190.0 mm)
- Depth: 154.4 mm
- Power cable: 2 m

Weight
- 11.7 lbs (5,300 g)

Colours
- Chalk, Charcoal

Materials
- Acoustically transparent fabric
- Rigid polycarbonate housing
- Silicone base

Supported audio formats
- HE-AAC, LC-AAC, MP3, Vorbis, WAV (LPCM), Opus, FLAC with support for high-resolution streams (24-bit/96 KHz)

Wireless
- Wi-Fi • Bluetooth
- 802.11b/g/n/ac (2.4GHz/5Ghz) Wi-Fi for high-performance streaming
- Chromecast built-in
- Bluetooth® 4.2

Speaker
- Two 114 mm high-excursion (+/- 11 mm), dual voice-coil woofers
- Two 0.7" (18 mm) custom tweeters
- Sealed rigid housing
- Acoustically transparent fabric

Mics
- Far-field voice recognition supports hands-free use
- 6 mic array

Processor
- Quad-core ARM
- 1.5 GHz 64 bit quad-core ARM® Cortex™ A53

Sensors
- Capacitive touch sensor
- Ambient light sensor
- Accelerometer

Power
- AC Power 100-240 V, 50/60 Hz

Ports & Connectors
- USB-C™ • 3.5 mm jack
- USB-C1
- 3.5-mm jack with analogue audio input

AC power
- 1USB Type-C and USB-C are trademarks of USB Implementers Forum.

Operating system
- Android • iOS

Other
- Multi-room audio

Google Home Mini

Key Features: A powerful little helper; Google Home Mini keeps you informed and up to date with instant news, weather and commute updates without lifting a finger. Master the kitchen; Google Home Mini helps with timers, step-by-step recipes, and conversions and substitutes. Start your smart home; it's always improving with seamless connections to the latest compatible smart lights and thermostats.
Final Thoughts: The budget range of Google Home offers a great product for the price.

Dimensions
- Diameter: 98 mm
- Height: 42 mm (1.65")
- Power cable: 1.5 m
-

Weight
- Device: 173 g
- Power adaptor and cable: approximately 75 g

Colours
- Chalk, Charcoal, Coral. Aqua

Materials
- Durable fabric top
- External enclosure made from 20% post-consumer recycled plastic
- Non-skid silicone base

Supported audio formats
- HE-AAC, LC-AAC, MP3, Vorbis, WAV (LPCM), Opus, FLAC with support for high-resolution streams (24-bit/96 KHz)

Wireless
- Wi-Fi • Bluetooth® support
- 802.11b/g/n/ac (2.4 GHz/5 Ghz) Wi-Fi
- Chromecast and Chromecast Audio built-in
- Bluetooth® 4.1 input support

Sensors
- Capacitive touch

Speaker
- 360 sound with 40-mm driver

Mics
- 2-mic array
- Mic switch

Power
- 5 V, 1.8 A

Ports & Connectors
- Micro USB port

Operating system
- Android • iOS

Google Nest Hub

Key Features: See your life in one view and get things done hands-free. Google Nest Hub helps you make the most of moments at home. With Voice Match, get your calendar, commute, reminders and more right on the home screen, for example "Hey Google, show me my calendar." You can even get the news, make a shopping list and place calls to friends, family and local businesses. Voice-control compatible lights, cameras, TVs and more from a single dashboard.
Final Thoughts: Entry-level, video based addition to the collection.

65°
Clear
Commute
20 min to work

Dimensions
- Depth: 67.3 mm (2.65")
- Width: 178.5 mm (7.02")
- Height: 118 mm (4.65")
- Power cable: 1.5 m

Weight
- 480 g (16.9 oz)

Colours
- Sand, Aqua, Chalk, Charcoal

Display
- 177.8 mm (7") LCD touch screen

Speaker
- Full-range speaker

Microphones
- 2-mic array

Sensors
- Capacitive touch

Connectivity
- Wi-Fi and Bluetooth® support
- 802.11b/g/n/ac (2.4 GHz/5 Ghz) Wi-Fi
- Bluetooth® 5.0 support

Power
- 15 W power adaptor

Ports
- DC power jack

Google Home

Key Features: Simplify your everyday life with the Google Home, a voice-activated speaker powered by the Google Assistant. Use voice commands to enjoy music, get answers from Google and manage everyday tasks. Google Home is compatible with Android and iOS operating systems, and can control compatible smart devices such as Chromecast or Nest.
Final Thoughts: Perfect for the first time user, features a host of abilities.

Dimensions
- Depth: 67.3 mm (2.65")
- Width: 178.5 mm (7.02")
- Height: 118 mm (4.65")
- Power cable: 1.5 m

Weight
- 480 g (16.9 oz)

Colours
- Sand, Aqua, Chalk, Charcoal

Display
- 177.8 mm (7") LCD touch screen

Speaker
- Full-range speaker

Microphones
- 2-mic array

Sensors
- Capacitive touch

Connectivity
- Wi-Fi and Bluetooth® support
- 802.11b/g/n/ac (2.4 GHz/5 Ghz) Wi-Fi
- Bluetooth® 5.0 support

Power
- 15 W power adaptor

Ports
- DC power jack

Operating system
- Android • iOS

Google Nest Mini

Key Features: Meet the second generation Nest Mini, the speaker you control with your voice. To play your favourite music from Spotify, YouTube Music and more, just say "Hey Google". It sounds bigger and richer with 40 percent stronger bass than the original Mini. Ask your Google Assistant for help and get the best of Google – weather, news, or almost anything. Hear your personalised schedule, commute and reminders. Set timers and alarms and even turn on the lights. Nest Mini is compatible with hundreds of smart devices, such as lights, thermostats and TVs.
Final Thoughts: The latest and best version of the Google Home range.

Dimensions
- Diameter: 98 mm (3.85")
- Height: 42 mm (1.65")
- Power cable: 1.5 m

Weight
- Device: 181 g

Colours
- Colours, Chalk, Charcoal, Coral, Sky

Materials
- Durable fabric top made from 100% recycled plastic bottles External enclosure made with at least 35% post-consumer recycled plastic

Connectivity
- Wi-Fi • Bluetooth® support
- 802.11b/g/n/ac (2.4 GHz/5 GHz) Wi-Fi
- Bluetooth® 5.0
- Chromecast built-in

Power and ports
- 15 W power adaptor • DC power jack

Speakers
- Google Assistant built-in
- 360-degree sound with 40 mm driver

Mics
- 3 far-field microphones
- Voice Match technolog

Sensors
- Capacitive touch controls
- 3 far-field microphones

Processor
- Quad-core 64-bit ARM CPU 1.4 GHz
- High-performance ML hardware engine

Operating system
- Android • iOS

Google Nest Hub Max

Key Features: Make your smart home even smarter. Nest Hub Max works with hundreds of smart home devices, including lights, TVs and thermostats, allowing you to easily control them all from one place. You can also control compatible TVs, speakers and game consoles from Nest Hub Max with your voice or from the screen. Turn them on and off; control the volume, play, pause and search.
Final Thoughts: Adds video based features to the Google Home, a must!

8:00
Video message from Amy

Camera
- 6.5 megapixel camera with 127-degree wide field of view and auto-framing
- Face Match technology
- Quick Gestures
- Mic + camera switch

Dimensions
- Depth: 101.23 mm (3.99")
- Width: 250.1 mm (9.85")
- Height: 182.55 mm (7.19")
- Power cable: 1.5 m

Weight
- 1.32 kg (2.91 lb.)

Colours
- Chalk, Charcoal

Display
- 10" HD touchscreen (1280x800)

Speakers and mic
- Stereo speaker system
- Google Assistant built-in
- Stereo speaker system (2 x 18 mm, 10 W tweeters, 1 x 75 mm, 30 W woofer)
- Far-field microphones
- Ultrasound sensing
- Voice Match technology

Sensors
- Ambient EQ light sensor

Connectivity
- Wi-Fi and Bluetooth support

Wi-Fi
- 802.11b/g/n/ac (2.4 GHz/5 GHz) Wi-Fi
- Bluetooth® 5.0 support
- Chromecast built-in
- 802.15.4 (at 2.4 GHz) thread support

Power
- 30 W power adaptor

Ports
- DC power jack

Operating system
- Android • iOS

Google Home First Time Setup

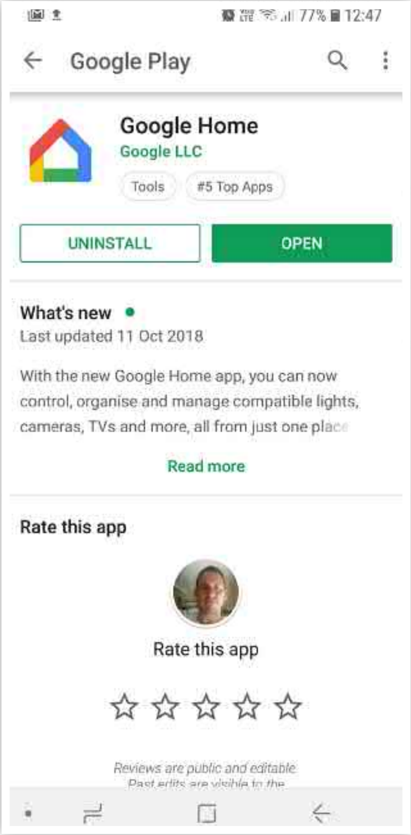
Setting up your Google Home device properly for the first time will make using it much easier, so take the time to get things right. You will need to have the speaker, an Android device, a Google account and a working Wi-Fi connection that both Android and Home devices can connect to.

Setting Up Google Home

All of the setup for your Google Home speaker is done through the Google Home app for Android. Use this app for future access and changes to the settings.

Step 1

Plug in your Google Home device and wait for the audio cue to show it is ready to be set up. Make sure that the switch that controls the microphone is set to "On". If you accidentally turn the microphone off on your speaker, the device will inform you accordingly.



Google Home
Google LLC
Tools #5 Top Apps

What's new
Last updated 11 Oct 2018

With the new Google Home app, you can now control, organise and manage compatible lights, cameras, TVs and more, all from just one place

Rate this app

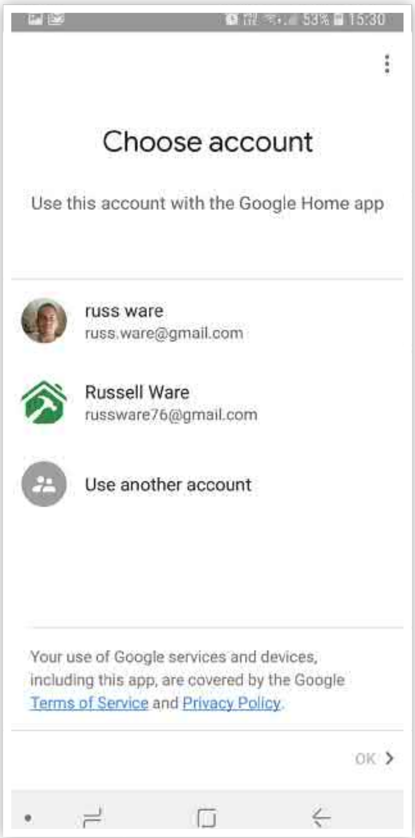
Rate this app

☆ ☆ ☆ ☆ ☆

Reviews are public and editable
Past edits are visible to the

Step 2

Currently, Google Home is only available for Android devices, and most have it pre-installed. If you don't already have it, find the app on the Google Play store, download and install it on your mobile device (phone or tablet). Once installed, open the app.



Choose account

Use this account with the Google Home app

russ ware
russ.ware@gmail.com

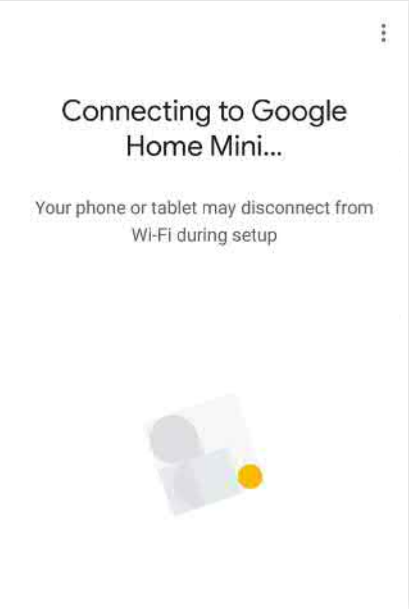
Russell Ware
russware76@gmail.com

Use another account

Your use of Google services and devices, including this app, are covered by the Google Terms of Service and Privacy Policy.

Step 3

You will need to make sure that your mobile device is connected to the same Wi-Fi network you intend to use for the Google Home speaker. It won't work if you are using a 4G network to connect. Once connected, open the Home app and confirm which Google account you will use to log in.

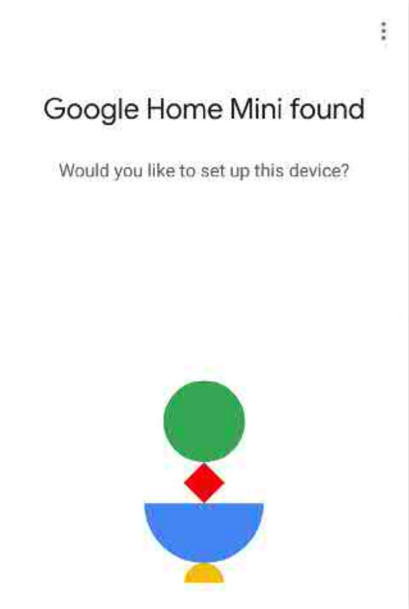


Connecting to Google Home Mini...

Your phone or tablet may disconnect from Wi-Fi during setup

Step 4

› The Google Home app scans for nearby devices that are plugged in and ready to set up. If no devices are found, and you're setting up a device, tap Yes. Make sure that you're near the Google Home device that you're setting up and it's plugged into a wall socket. Then tap Next.

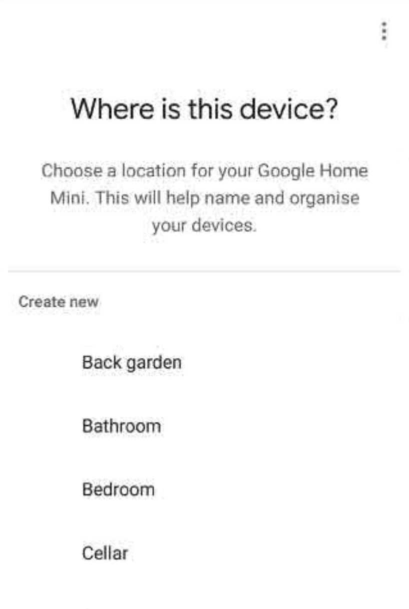


Google Home Mini found

Would you like to set up this device?

Step 5

› Hopefully your device will be found by the app, displayed on screen and you can then tap Next to continue. If you are setting up multiple devices, select the one you want to set up first, and then tap Next. The app will now connect your phone to your new Google Home ready for configuration.



Where is this device?

Choose a location for your Google Home Mini. This will help name and organise your devices.

Create new

Back garden

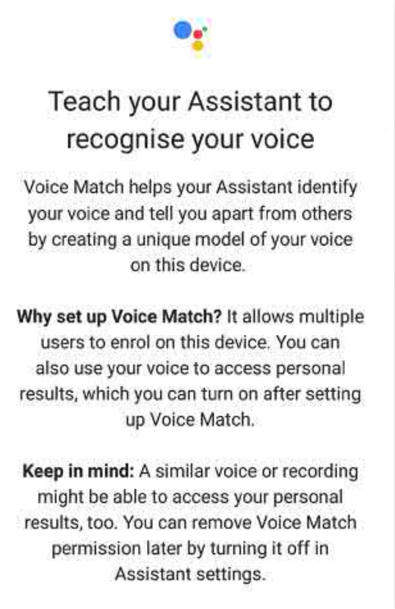
Bathroom

Bedroom

Cellar

Step 6

› You should hear a sound on your speaker to show it is connected. You can now continue the setup by selecting the room it will be in (this is just to identify the speaker), choosing your region, and setting the assistant language you want to use. Once done, you will need to connect to your Wi-Fi network.



Teach your Assistant to recognise your voice

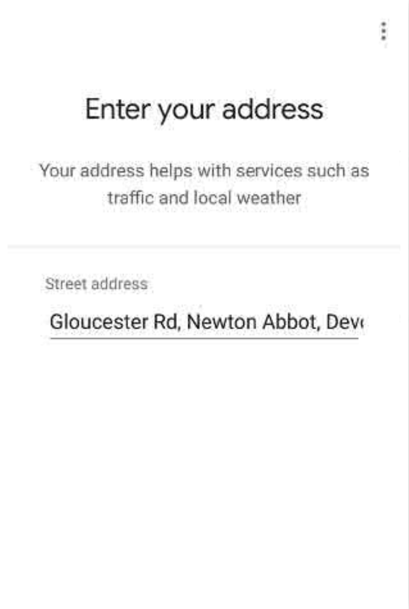
Voice Match helps your Assistant identify your voice and tell you apart from others by creating a unique model of your voice on this device.

Why set up Voice Match? It allows multiple users to enrol on this device. You can also use your voice to access personal results, which you can turn on after setting up Voice Match.

Keep in mind: A similar voice or recording might be able to access your personal results, too. You can remove Voice Match permission later by turning it off in Assistant settings.

Step 7

› Next, to improve your Google Home experience, set up Voice Match. Voice Match allows multiple users to use the same device and get personalised results. Follow the prompts on screen to teach Google to recognise you. You can remove Voice Match settings later if you wish.



Enter your address

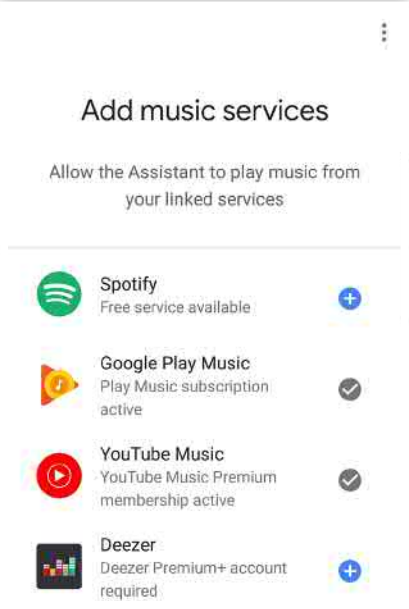
Your address helps with services such as traffic and local weather

Street address

Gloucester Rd, Newton Abbot, Dev

Step 8

› The Google Home app will ask for access to use your location to pre-fill your address. This is the address where your device is located. If you allow access, your address will be pre-filled; otherwise, you will need to enter it manually. When your address is entered tap Next.



Add music services

Allow the Assistant to play music from your linked services

Spotify
Free service available

Google Play Music
Play Music subscription active

YouTube Music
YouTube Music Premium membership active

Deezer
Deezer Premium+ account required

Step 9

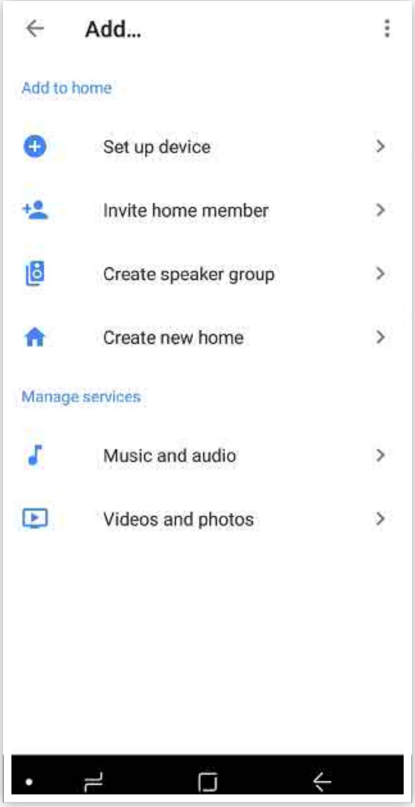
› You can now add your favourite services, for example music. Spotify, Google Play Music, YouTube Music and Deezer are just some of those available. If you add more than one, you will need to choose a default music service. Follow the further on-screen prompts to complete the setup.

Play Music on Google Home

Listening to the music you want on Google Home requires you to set up the music services it uses. To do this you need to know how to ask the speaker to play, stop, pause, shuffle and skip the music you want! Let's take a look at just how you listen to music on Google Home.

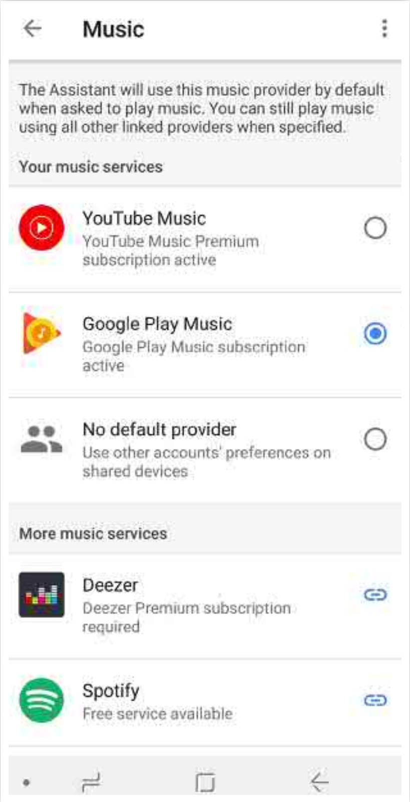
Choosing Music Services

You can connect your speaker to a great variety of different music services, from Google Play Music to Spotify and Deezer, which will give you access to millions of songs.



Step 1

› You will have been asked to choose a music service during the setup of the Google home speaker, but if you skipped this step, or want to add more, you can add services at any time. Open the Google Home app on your Android device and tap the +Add button on the Home tab. Then tap Music and audio.



The Assistant will use this music provider by default when asked to play music. You can still play music using all other linked providers when specified.

Your music services

○ YouTube Music
YouTube Music Premium subscription active

● Google Play Music
Google Play Music subscription active

○ No default provider
Use other accounts' preferences on shared devices

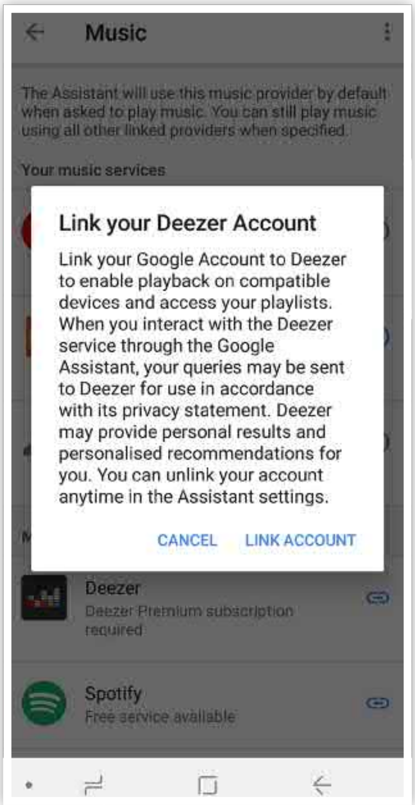
More music services

Deezer
Deezer Premium subscription required

Spotify
Free service available

Step 2

› If you have a Google Play Music or YouTube Red account (connected to the current Google account), these services will be linked automatically. To link one of the other music services, tap the small link icon next to each one. Read the information in the box that pops up and then tap Link Account.



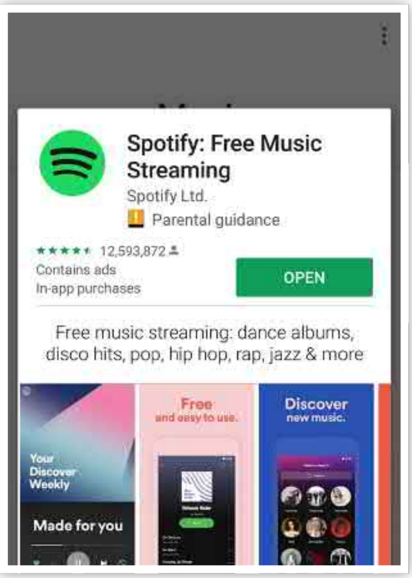
Link your Deezer Account

Link your Google Account to Deezer to enable playback on compatible devices and access your playlists. When you interact with the Deezer service through the Google Assistant, your queries may be sent to Deezer for use in accordance with its privacy statement. Deezer may provide personal results and personalised recommendations for you. You can unlink your account anytime in the Assistant settings.

Step 3

› You will now be taken to the music service Login screen, where you will have to log in to your account (or create an account if you don't already have one). Once this is done successfully, you will be returned to the Home app where you will see the music service linked to your Home device.

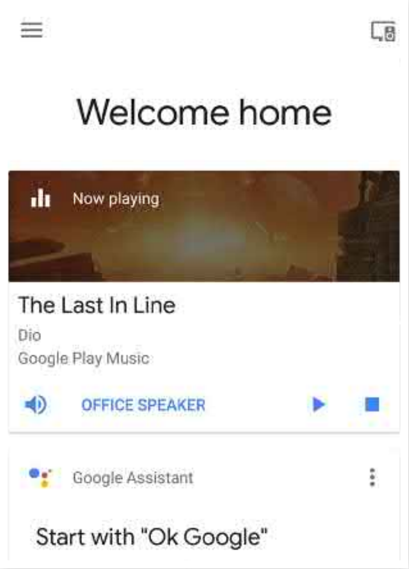
Playing Music on Google Home



Spotify: Free Music Streaming
Spotify Ltd.
Parental guidance
★★★★★ 12,593,872
Contains ads
In-app purchases
OPEN
Free music streaming: dance albums, disco hits, pop, hip hop, rap, jazz & more

Step 1

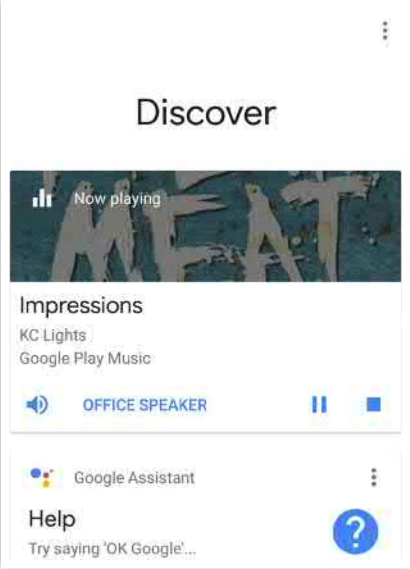
❱ Now you have your music services linked to Google Home, you can start listening. Exactly what music you can listen to depends on which service you are using. For example, you may not be able to request certain songs by name if you only have a Spotify Free account.



Welcome home
Now playing
The Last In Line
Dio
Google Play Music
OFFICE SPEAKER
Google Assistant
Start with "Ok Google"

Step 2

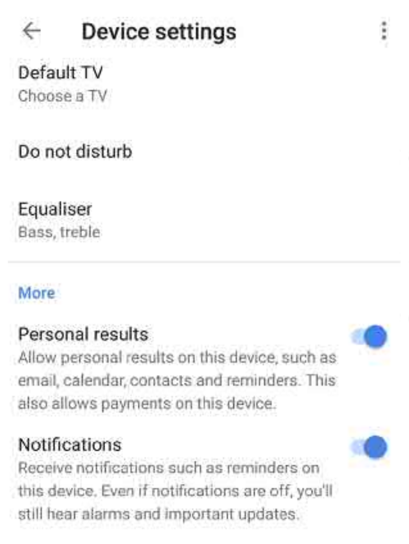
❱ To play a specific song, say "Hey Google, play <song name>," "Hey Google, play <song name> by <artist name>," or "…play <song name> on <music service>." Certain music services will also allow you to search for songs by saying, "…play songs like <song name>."



Discover
Now playing
Impressions
KC Lights
Google Play Music
OFFICE SPEAKER
Google Assistant
Help
Try saying 'OK Google'...

Step 3

❱ There are some specific commands for the different music services, but all of them will react to the general music control commands. These are: "Play," "Shuffle," "Pause," "Resume," "Stop," "Next," "Skip," "What song is playing?" "Volume up/down," or "Set volume to 5."



Device settings
Default TV
Choose a TV
Do not disturb
Equaliser
Bass, treble
More
Personal results
Allow personal results on this device, such as email, calendar, contacts and reminders. This also allows payments on this device.
Notifications
Receive notifications such as reminders on this device. Even if notifications are off, you'll still hear alarms and important updates.

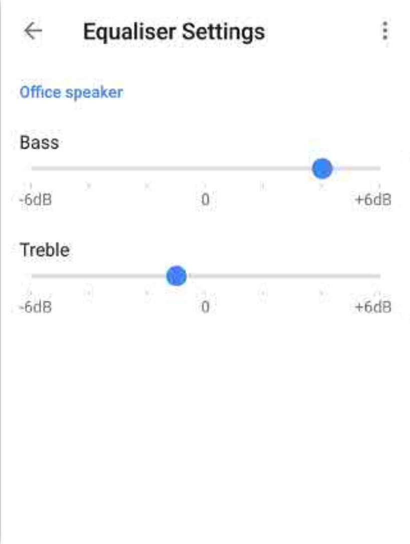
Step 4

❱ Guests and housemates cannot access your library content if you've set up Voice Match. However, you can give them access by uploading your music to their account. If you haven't set up Voice Match, guests and housemates can access music from your library in the same way you can.

Mix – Sia - The Greatest
YouTube
Sia - The Greatest
576M views
3.7M 170K Share Download Save to
Sia
13M subscribers
SUBSCRIBE
Rag'n'Bone Man Human (Official

Step 5

❱ You can also play music from your desktop Chrome browser on your Google Home speaker (as long as the computer is connected to the same Wi-Fi network). Open the browser and start playing the music. Click the Chrome menu button, select Cast and choose the speaker to play through.



Equaliser Settings
Office speaker
Bass
-6dB 0 +6dB
Treble
-6dB 0 +6dB

Step 6

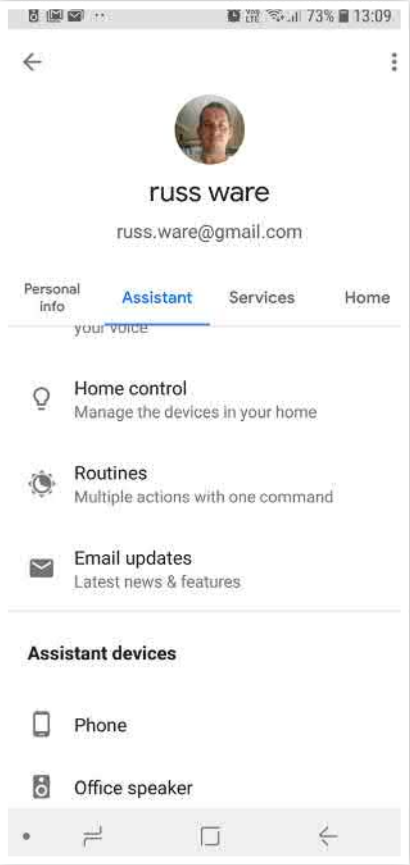
❱ You can use the Home app on your Android device to control the music that is playing on your speaker. Open the app and tap the speaker name on the home tab. Here you will see play and pause controls, along with a volume slider. Tap the Equaliser button to change bass and treble levels.

Using Google Home Routines

Routines are a set of actions that your Google Home can perform when activated by a single voice command. You can customise existing preset routines in the Google Home app, or you can create your own routines from scratch, using a wide variety of available actions.

Create and Manage Routines

Learn how to customise, create and use Routines with your Google Home speaker and the Google Home app.



Home control
Manage the devices in your home

Routines
Multiple actions with one command

Email updates
Latest news & features

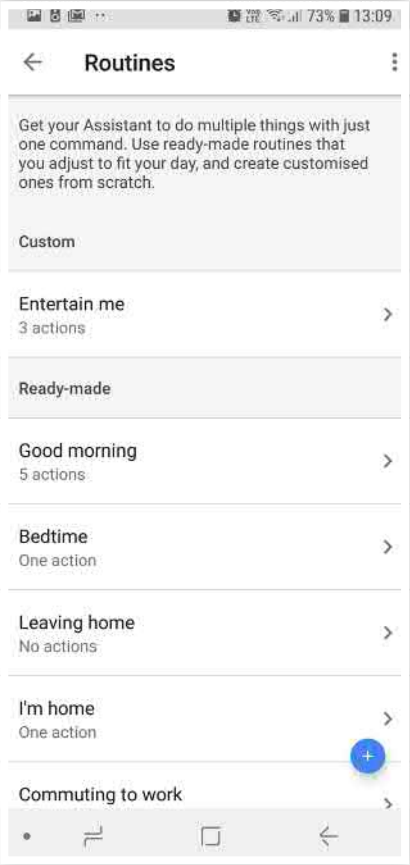
Assistant devices

Phone

Office speaker

Step 1

Your Google Home app comes with several pre-set routines. To view or edit these, tap the Menu button at the top left, and select "More settings". Scroll down and tap the "Routines" section. Here you will see displayed all of the existing routines, for example "Good morning" or "Bedtime".



Get your Assistant to do multiple things with just one command. Use ready-made routines that you adjust to fit your day, and create customised ones from scratch.

Custom

Entertain me
3 actions

Ready-made

Good morning
5 actions

Bedtime
One action

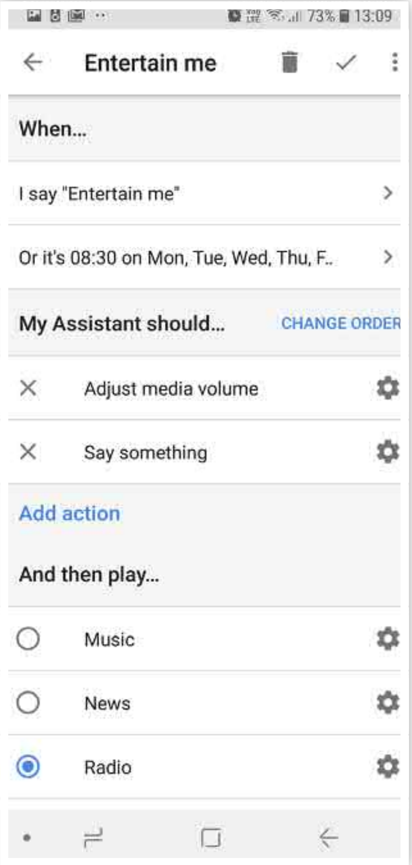
Leaving home
No actions

I'm home
One action

Commuting to work

Step 2

Below each routine name, you will see the number of associated actions. Tap a routine to start editing it. While all routines can be edited, you will notice they have differing numbers of actions that can be added. The pre-set routines illustrate this difference.



When...

I say "Entertain me"

Or it's 08:30 on Mon, Tue, Wed, Thu, F..

My Assistant should...

Adjust media volume

Say something

And then play...

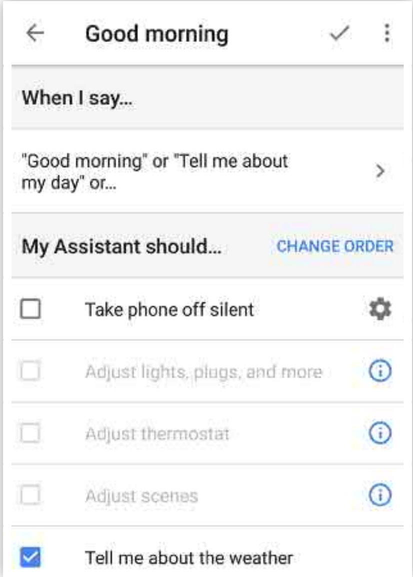
○ Music

○ News

● Radio

Step 3

Routines are split into sections: "When I say…", (the command) "My assistant should…" (the main actions to perform) followed by "And then play" (additional actions). You can manage and edit each of these sections individually.



Good morning

When I say...

"Good morning" or "Tell me about my day" or...

My Assistant should... CHANGE ORDER

☐ Take phone off silent

☐ Adjust lights, plugs, and more

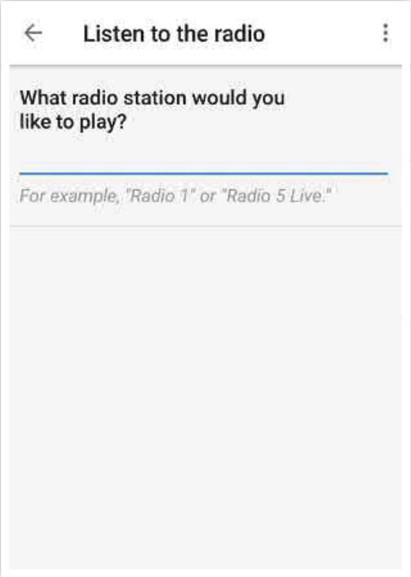
☐ Adjust thermostat

☐ Adjust scenes

☑ Tell me about the weather

Step 4

› For example, the single command "Good morning" could take the phone off silent, tell you the weather alongside your reminders and commute information. It could then give you the news headlines from a variety of sources (BBC, CNN, etc.) before playing your favourite radio station until you tell it to stop.



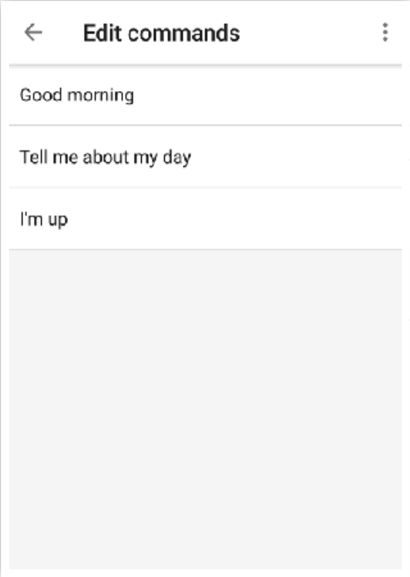
Listen to the radio

What radio station would you like to play?

For example, "Radio 1" or "Radio 5 Live."

Step 5

› Tap the checkbox next to each action to add or remove it from the routine. If the action has a gear icon next to it, you can tap this to see further settings. For example, the Play Radio action allows you to choose the radio station you want to use, and music settings lets you choose the music source.



Edit commands

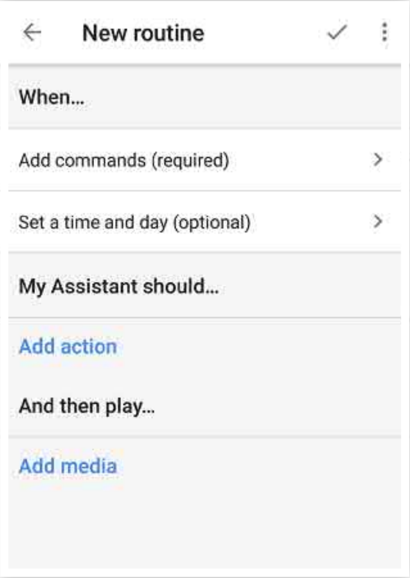
Good morning

Tell me about my day

I'm up

Step 6

› You can also change the command that activates the actions (although you will still need to say "Hey/Okay Google" first). Most pre-set routines have a couple of commands already set, but you can add a new one by tapping the top section, then tap + and type your desired command and then press Enter to activate it.



New routine

When...

Add commands (required)

Set a time and day (optional)

My Assistant should...

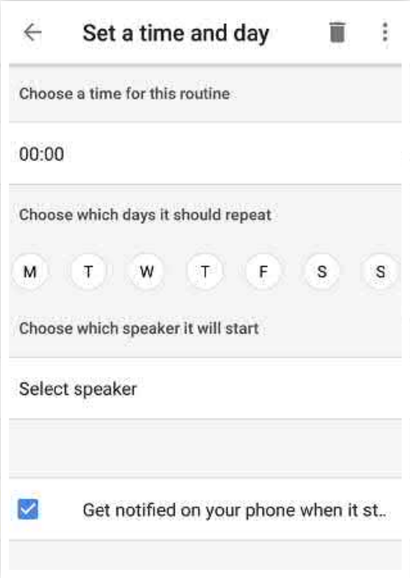
Add action

And then play...

Add media

Step 7

› If none of the pre-set routines meet your needs, you can create your own from scratch. Open the routines settings in the Google Home app and tap the + button. Start by editing the command you want to use to activate the routine. Simple commands seem to work best, so keep it short!



Set a time and day

Choose a time for this routine

00:00

Choose which days it should repeat

M T W T F S S

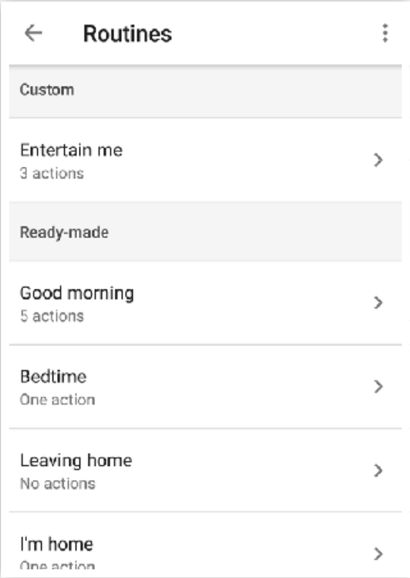
Choose which speaker it will start

Select speaker

☑ Get notified on your phone when it st..

Step 8

› If you wish, you can set a day/time of day when the routine activates automatically although you can still activate the routine at other times with the command. Next, add an action, either by typing the name of a Google Assistant command, or by tapping "Choose popular actions", selecting one and tapping "Add".



Routines

Custom

Entertain me
3 actions

Ready-made

Good morning
5 actions

Bedtime
One action

Leaving home
No actions

I'm home

Step 9

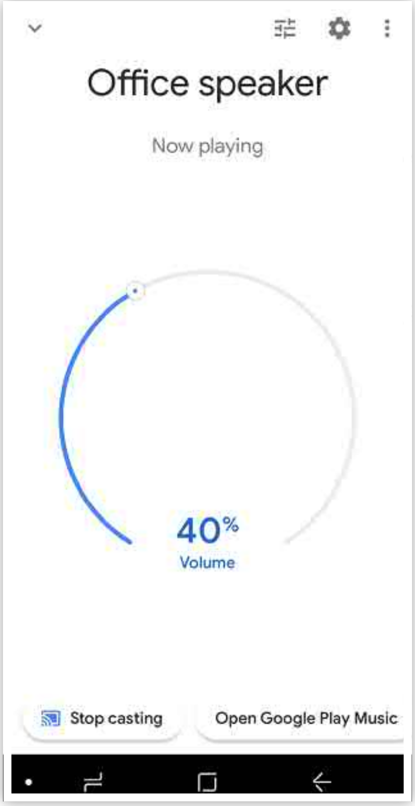
› When you've finished setting up the new routine, tap the check mark at the top and the screen will change to display all routines. Your newly created routine will be given the name of the command word you used (e.g. "Entertain me"). Test the routine by speaking the command to your Google Home.

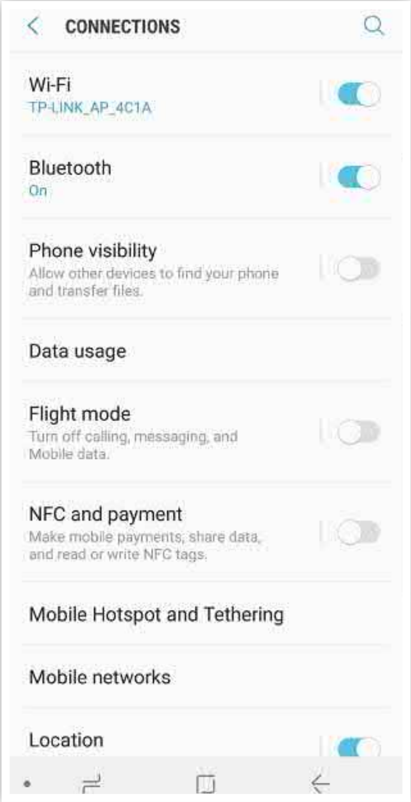
Play Music Using Bluetooth

As well as being connected by Wi-Fi, your Google Home device can also be used as a Bluetooth speaker, playing music that is stored on your phone or tablet or even your laptop. You can also stream music from your Google Home device to a pair of Bluetooth headphones.

Play Music on the Home Speaker

Being able to play music stored on your phone or tablet through the Google Home speaker is a useful addition to its bag of tricks and opens up a host of new audio possibilities.




CONNECTIONS

Wi-Fi
TP-LINK_AP_4C1A

Bluetooth
On

Phone visibility
Allow other devices to find your phone and transfer files.

Data usage

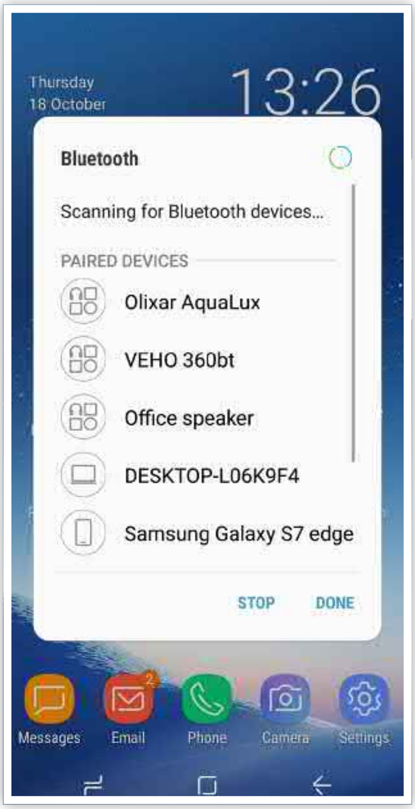
Flight mode
Turn off calling, messaging, and Mobile data.

NFC and payment
Make mobile payments, share data, and read or write NFC tags.

Mobile Hotspot and Tethering

Mobile networks

Location


Thursday
18 October
13:26

Bluetooth
Scanning for Bluetooth devices...
PAIRED DEVICES
Olixar AquaLux
VEHO 360bt
Office speaker
DESKTOP-L06K9F4
Samsung Galaxy S7 edge
STOP DONE

Step 1

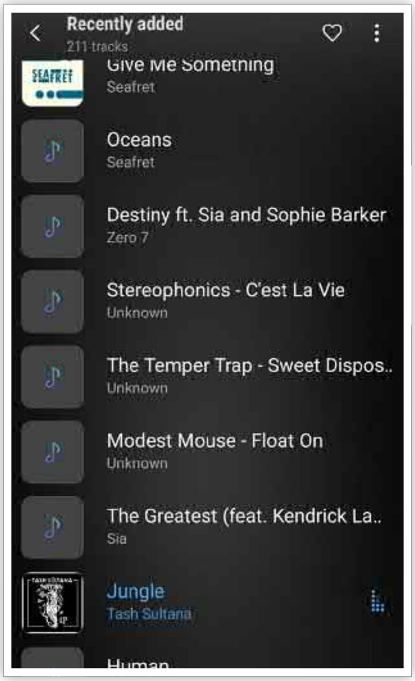
› Open the Google Home app and tap the name of the device you want to connect with via Bluetooth. In the top right corner of the device info card, tap the device settings menu and then find the Paired Bluetooth devices heading and tap it. In the next screen, tap the Enable Pairing Mode button.

Step 2

› Now open the Bluetooth settings on your mobile device and turn Bluetooth on. The device will scan for available connections, and you should see the name you gave your speaker appear in the list of discovered Bluetooth devices. Tap the speaker name to pair the devices using Bluetooth.

Step 3

› If the Google Home speaker is paired with multiple speakers, it will default to the most recently paired device. You can tell Google Home to connect by saying “Hey Google, connect to Bluetooth,” or you can change which speaker is paired by opening the Bluetooth settings on your device.



Recently added
211 tracks

Give Me Something
Seafret

Oceans
Seafret

Destiny ft. Sia and Sophie Barker
Zero 7

Stereophonics - C'est La Vie
Unknown

The Temper Trap - Sweet Dispos..
Unknown

Modest Mouse - Float On
Unknown

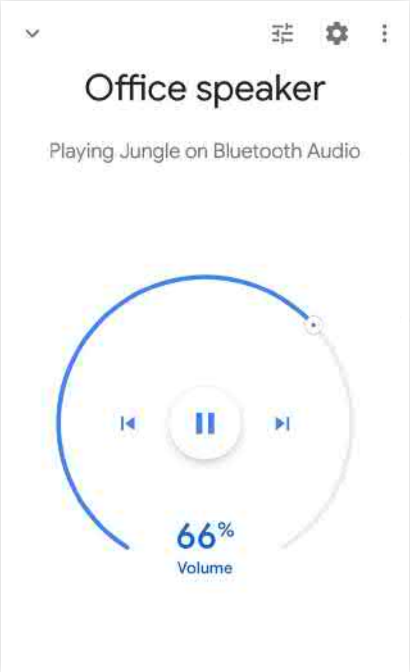
The Greatest (feat. Kendrick La..
Sia

Jungle
Tash Sultana

Human

Step 4

❱ To play music through the connected speaker, just use whichever music player you normally use to play your device music. When connected to the speaker using Bluetooth, anything you play (from MP3 files to YouTube videos) will play through the speaker.

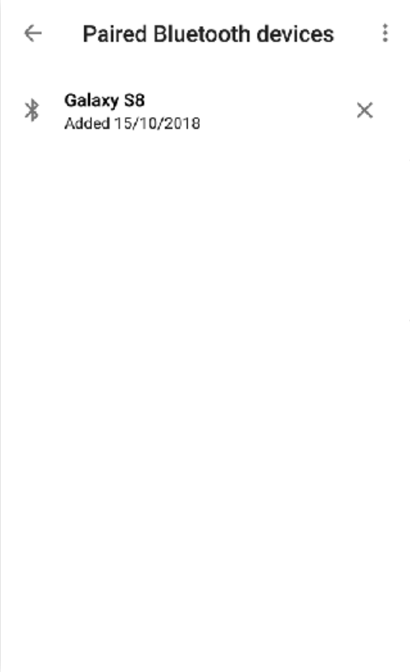


Office speaker

Playing Jungle on Bluetooth Audio

Step 5

❱ You can also use voice commands to tell your Google Home speaker to play music that is stored on your mobile device. Just say "Hey Google <song name> or <playlist name>." You can use all of the normal music voice commands to pause, stop, skip, change volume, etc.



Paired Bluetooth devices

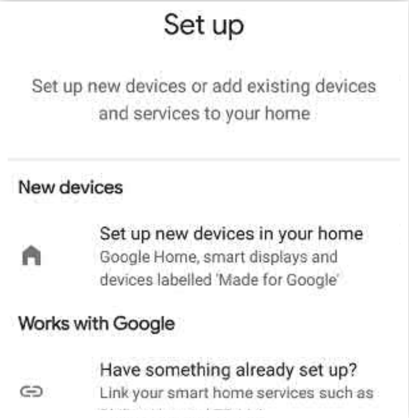
Galaxy S8
Added 15/10/2018

Step 6

❱ To unpair the devices, open the Google Home app and find the device card for the Google Home that you want to unpair. Open the device settings and then go to Paired Bluetooth devices. Tap the X next to the device that you want to unpair and then tap Unpair.

Play Music on Bluetooth Headphones

You can also connect a set of Bluetooth headphones through the Google Home speaker and app.



Set up

Set up new devices or add existing devices and services to your home

New devices

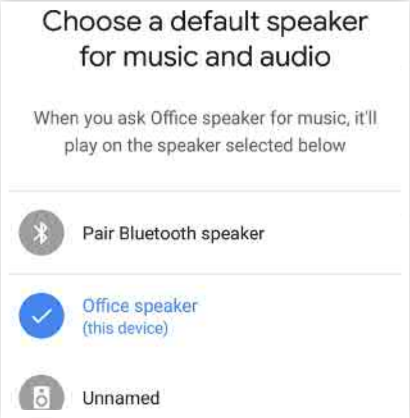
Set up new devices in your home
Google Home, smart displays and devices labelled 'Made for Google'

Works with Google

Have something already set up?
Link your smart home services such as

Step 1

❱ Turn on your Bluetooth headphones; placing them in pairing mode; this is normally done by pressing the pairing button on your headphones (a light will usually flash to tell you). Now open the Google Home app on your Android device and select the speaker you want to connect to.



Choose a default speaker for music and audio

When you ask Office speaker for music, it'll play on the speaker selected below

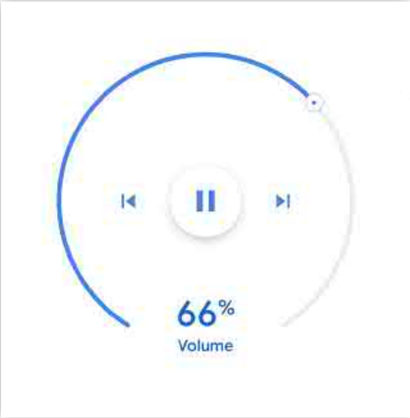
Pair Bluetooth speaker

Office speaker
(this device)

Unnamed

Step 2

❱ Tap the Settings button and scroll down to find the Bluetooth options. Tap "Default music speaker" and then tap "Pair Bluetooth speaker". It will then scan for available headphones (or speakers) and allow you to connect by tapping the name in the list of available devices.



Step 3

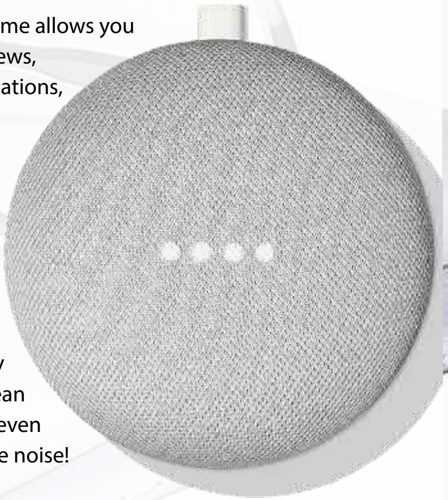
❱ You can only have one connected speaker or headphones to play music through at a time. Once you pair and connect your speaker to a Google Home, it will auto-connect unless the speaker is disconnected. You can use normal Google Assistant commands to play music.

Google Home Tips and Tricks

Your Google Home speaker is great for playing music or listening to the news, but it also allows you to do so much more! From getting general info, reading a recipe and finding your phone, to playing a game or telling you a joke, there are literally 100's of things it can do; here's 10 of the best.

Listen to Audio

Your Google Home allows you listen to music, news, podcasts, radio stations, audio books and more. You can also tell it to play ambient sounds in the background. Just say, "Hey Google, help me relax," or "Hey Google, play forest/nature/ocean sounds." You can even make it play white noise!



Control Your TV

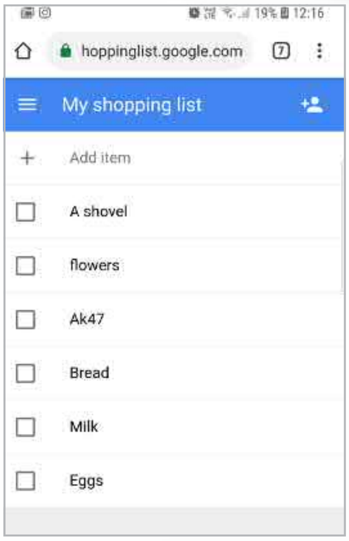
If you have a Chromecast plugged in (or built in) to your TV, you can easily control it with your Google Home speaker. If your Chromecast is plugged in to a power socket (rather than USB), you can even use the speaker to turn your TV on and off. Just say, "…Turn on the TV," or "…turn my TV off."

Plan Your Day

Start your day off by saying, "Hey Google, Good morning," to hear traffic, weather and news reports along with a list of your appointments, reminders, and more; you can also ask for these things individually. If you need to find something nearby, just say, "…where is the nearest pharmacy?" for example.

Create Lists

You can create a list in the Google Home app and then add to it using your Home speaker. Once you have a list created, just say, "Hey Google, add orange juice to my shopping list," or "…add paper towels and hand soap to my list." For a reminder at any time just say, "…what's on my shopping list."



My shopping list

Add item

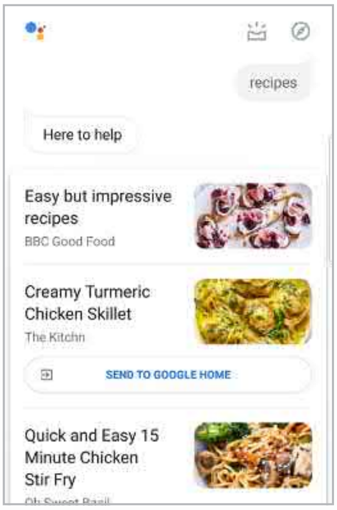
- ☐ A shovel
- ☐ flowers
- ☐ Ak47
- ☐ Bread
- ☐ Milk
- ☐ Eggs

Find Your Phone

Never lose your phone again! Provided Voice Match is set up, you can ask your Google Assistant to ring your phone. To do this say, “Hey Google, find/ring my phone,” and your Google Assistant will ring your phone, even if it’s set to ‘Do Not Disturb’ mode.

Cook

You can find and make your favourite recipes using step-by-step cooking instructions. For example, just say, “Hey Google, find a recipe for pancakes,” you can then say, “…prepare the ingredients,” for a list, followed by “…start recipe.”



recipes

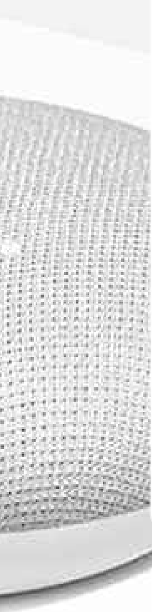
Here to help

Easy but impressive recipes
BBC Good Food

Creamy Turmeric Chicken Skillet
The Kitchn

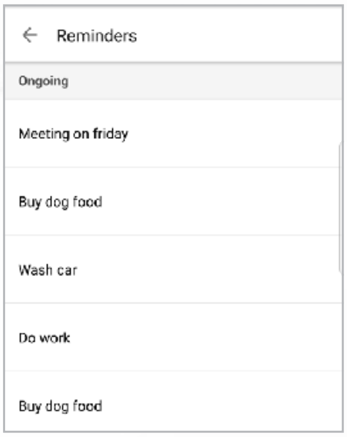
SEND TO GOOGLE HOME

Quick and Easy 15 Minute Chicken Stir Fry



Manage Tasks

You can easily set and ask about reminders by saying, “Hey Google, remind me to…” You can also use it to set timers and alarms by saying, “Hey Google, set a timer for 10 minutes.” If you want to check how much time is left just say, “…how much time is left?” You set alarms in the same way.



Reminders

Ongoing

Meeting on friday

Buy dog food

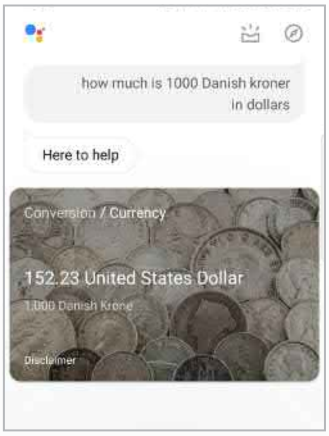
Wash car

Do work

Buy dog food

Get Answers

You can ask your Google Home to give you information about everything from finance to sports, you can ask for calculations, translations and unit conversions, for example, “Hey Google, how much is 1000 Danish Krone in dollars?” You can even ask for the nutritional information on most types of food.



how much is 1000 Danish kroner in dollars

Here to help

Conversion / Currency

152.23 United States Dollar

1,000 Danish Krone

Disclaimer

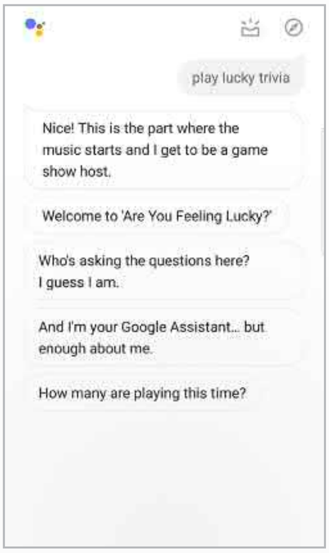
Control Your Home

If you have smart home devices such as smart plugs, a Nest thermostat or security cameras, you can link them to your Google Home and control them using your speaker. You will need to add the devices in the Home app, and follow any instructions to set them up.

nest
18
HEATING
20

Have Fun

Your Google Home speaker lets you play games with it, simply say, “Hey Google, play lucky trivia,” (other games include Crystal Ball and Mad Libs). If you don’t want to play a game, just tell it to “…entertain me,” or say, “...let’s have fun.” You can even ask it to tell you a joke!



play lucky trivia

Nice! This is the part where the music starts and I get to be a game show host.

Welcome to 'Are You Feeling Lucky?'

Who's asking the questions here? I guess I am.

And I'm your Google Assistant... but enough about me.

How many are playing this time?

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The macOS Big Sur Manual
NEW
OVER 937 Tips & Hints Inside
Raspberry Pi Tips, Tricks & Fixes
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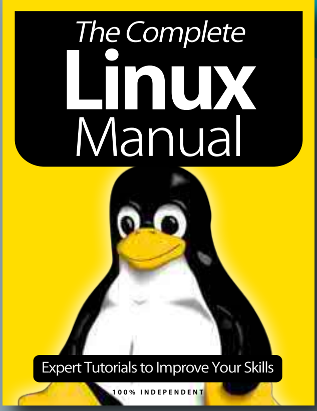
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100% INDEPENDENT

The Complete
Python
Manual
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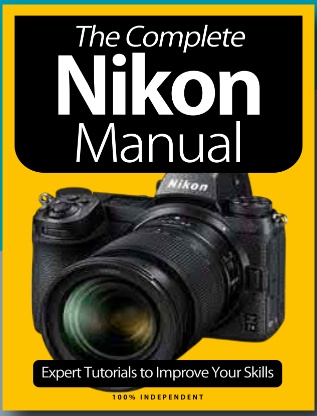
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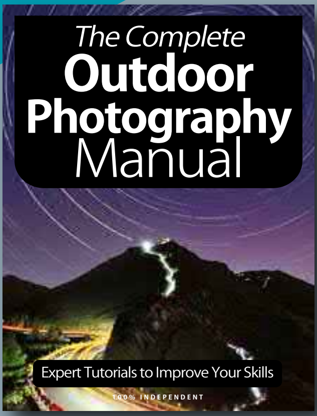
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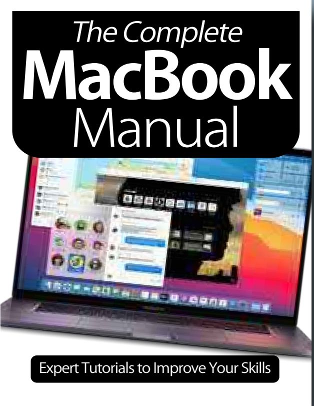
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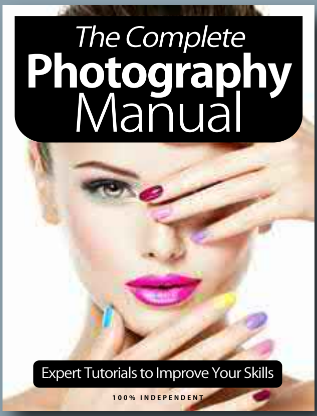
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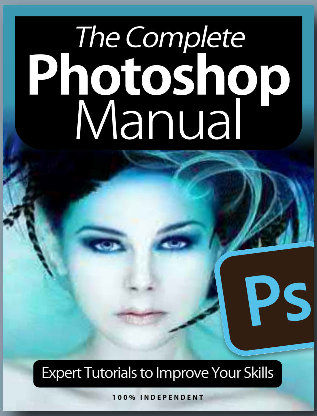
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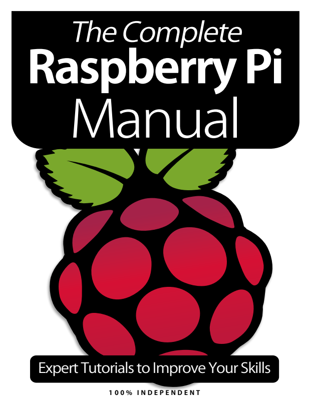
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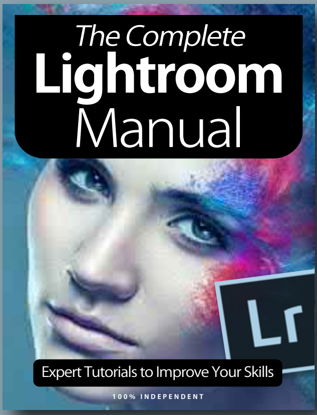
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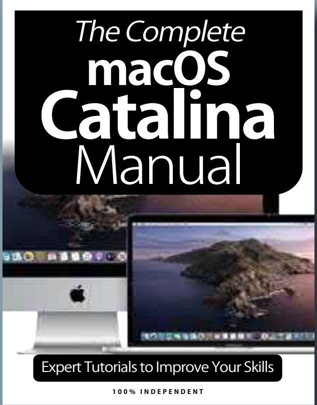
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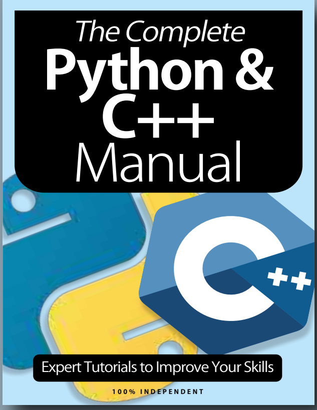
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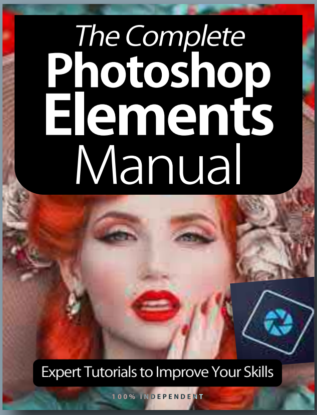
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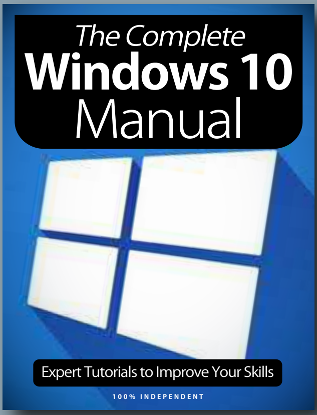
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